

Single payer ensures
high-quality health care

Section II: The Evidence-Based Case for Single-Payer National Health Insurance

Talking Point 6

Single-payer national health insurance is the best way to ensure high-quality health care.

A Better-Quality Alternative Single-Payer National Health System Reform

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MANY MISCONSTRUE US health system reform options by presuming that “trade-offs” are needed to counterbalance the competing goals of increasing access, containing costs, and preserving quality.^{1,2} Standing as an apparent paradox to this zero-sum equation are countries such as Canada that ensure access to all at a cost 40% per capita less, with satisfaction and outcomes as good as or better than those in the United States.^{3,4} While the efficiencies of a single-payer universal program are widely acknowledged to facilitate simultaneous cost control and universal access, lingering concerns about quality have blunted support for this approach.

See also p 797.

Quality is of paramount importance to Americans. Opponents of reform appeal to fears of diminished quality, warning of waiting lists, rationing, and “government control.”⁵ Missing from more narrow discussions of the accuracy of such charges is a broader exploration of the quality implications of a universal health care program. Conversely, advocates of national health insurance have failed to emphasize quality issues as key

criteria for reform,⁶ often assuming that we have “the best medical services in the world.”⁷ They portray reform primarily as extending the benefits of private insurance to those currently uninsured, with safeguards added to preserve quality.

We disagree with both views. It is unthinkable to label our current system as “highest quality” given its frequent failure to provide such basic services as immunizations or prenatal, primary, and preventive care. Moreover, there is growing concern about quality problems with the care that is provided. Quality problems in the current system include denial of care, discrimination,⁸ disparities, geographic maldistribution,⁹ lack of continuity, lack of primary care,¹⁰ inadequate or lack of prenatal care,¹¹ failure to provide beneficial prevention,¹² substandard/incompetent providers,¹³ declining patient satisfaction and impersonal care,^{14,15} iatrogenesis (negligent adverse events),¹⁶ diagnostic errors,¹⁷ unnecessary procedures/surgery,¹⁸ suboptimal medication prescribing/usage,¹⁹ and neglect of quality-of-life/psychosocial issues.²⁰ Our “highest-quality” complacency is especially challenged by insights from two seemingly disparate sources: (1) epidemiologic research based on financial claims databases and (2) industrial quality improvement concepts pioneered in Japan. These two sources converge around the concept of “variations,” illuminating widespread differences in clinical practice, further challenging the cost-access-quality trade-off assumption. Data and insights from these two new paradigms demonstrate that better care will actually cost less once improvements are made in care processes and clinical decision making.^{21,22}

The health system must work better to extend access and to control costs. In

this article, we argue that a single-payer national health program provides a better framework for improving quality. First, we briefly review requirements for quality care. Then, we propose 10 principles that should be integral to reform strategies to augment quality. We contrast our approach with the current managed competition strategy,²³ showing how a single-payer system is more likely to facilitate these 10 interrelated quality features.

WHAT IS QUALITY? HOW CAN IT BE MEASURED?

High-quality care should result in improved health for individuals and the entire community. It depends on knowledgeable, caring providers who have a thorough understanding of preventive, diagnostic, and therapeutic strategies and the link between their application and improved health outcomes. Such strategies need to be applied with the highest technical skill and carried out in a humane, culturally sensitive, and coordinated manner. Quality will suffer when any of these components is lacking.

There is no single gold standard measurement of health care quality; its assessment requires multiple perspectives. The care provided to the population as a whole as well as to individual patients should be evaluated because critical quality issues may affect individuals who do not have access to medical services. Viewpoints of providers, patients, family members, and the community must be incorporated. Evaluated services should not be limited to medical care but should also include related services, such as nursing services, social services, and community education. To judge quality, we need a lengthened time frame that allows not only for examination of longer-term impacts but also for changes over

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time in what is considered good care. Finally, quality should be judged in the context of costs, because when equally good care is provided at a lower cost, more resources are available for other services.

Although consensus has emerged around many of these precepts,^{24,25} there is disappointment over the extent to which their fragmented application has actually improved care.^{26,27} This meagerness of demonstrated benefit is especially worrisome given providers' frustration with the time and administrative burdens imposed by current oversight measures. Promising efforts to operationalize these precepts on a larger scale (ie, Agency for Health Care Policy and Research, the Joint Commission on Accreditation of Healthcare Organizations' Agenda for Change, and Medicare's Quality Improvement Initiative)²⁸ will continue to have limited success if not linked to more fundamental changes in health care finance and delivery. This will require health system reform based on the application of quality assurance tools and insights, guided by the principles outlined below.

TEN PRINCIPLES FOR IMPROVED QUALITY

1. There is a profound and inseparable relationship between access and quality: universal insurance coverage is a prerequisite for quality care. Because quality must be population based, traditional definitions of quality should be broadened to include the gravest of quality deficits—denial of care.²⁸ The most important prerequisite for access is health insurance. To delay universal coverage for years, as projected in the Clinton plan and various congressional health proposals, means the continuation of compromised quality for millions of people.

Growing evidence from large observational studies underscores this strong relationship between quality and access/insurance status:

- The hospitalized uninsured are 2.3 times more likely to suffer adverse iatrogenic events.²⁹

- The loss of Medicaid coverage has been associated with a 10-point increase in diastolic blood pressure and a 15% increase in the hemoglobin A_{1c} level in diabetic patients, increasing the odds of dying within 6 months by 40%.³⁰

- The uninsured poor are twice as likely as those with private insurance to delay hospital care; among those delaying care, hospital stays are longer and death rates are higher.³¹

- Being uninsured was associated with twice the 15-year mortality (18.4% vs 9.6%); even after adjusting for major

health risk factors, mortality remained 25% higher.³²

- Lack of health insurance is associated with failure to receive preventive services, including blood pressure monitoring, Papanicolaou tests, breast examinations, and glaucoma screening.³³

This profound connection between quality and access extends far beyond simply underserving the uninsured. Access problems threaten quality for those with insurance who encounter delays and overcrowding in emergency departments overflowing with patients lacking primary care.³⁴ For the insured, limitations on benefits, including financial barriers (such as co-payments, restrictions in coverage, and rationing via administrative obstacles), increasingly obstruct care.³⁵ Most important, quality is distorted when ability and willingness to pay become the criteria for determining which services are provided. Marginally effective or even harmful treatments for the well-insured affluent take priority over more needed and appropriate services.³⁶

2. The best guarantor of universal high-quality care is a unified system that does not treat patients differently based on employment, financial status, or source of payment. This principle embodies Eddy's health care "golden rule": If a service is necessary for oneself, it is necessary for others.³⁷ We reject the notion that different people are entitled to a different quality of care.

The quality-impairing consequences of separate classes of insurance are illustrated by Medicaid, whose recipients, though "insured," are often refused care or provided substandard treatment.³⁸ For many medical services, access for Medicaid patients is little better than for the uninsured (D. U. Himmelstein and S. Woolhandler, unpublished tabulations from the 1987 National Medical Expenditures Survey). Similarly, universally available lowest-tier coverage, such as that proposed under managed competition, with more or better services only for those able to afford to upgrade their benefits, violates this principle and would perpetuate inequalities in health care.

The equality principle is a prerequisite to grapple meaningfully with ways to control marginally effective expensive interventions. Otherwise, limits based on ability to pay are, by definition, discrimination against the poor.³⁹

Under a multitiered system, patients and providers internalize an "everyone for himself or herself" ethic, eroding incentives for improving the system overall.⁴⁰ A cohesive system based on fairness and equality could harness each

citizen's desires for quality care to drive system quality upward. It would promote mechanisms for individual complaints to be linked to system-wide improvement rather than dissipated as special privileges. It would ensure that the quality of the basic plan is high enough to be acceptable to all citizens. Proposals that allow individual or corporate "opting out" of publicly defined benefit packages erode this quality-enhancing covenant. Hence, a single program not only minimizes discrimination against the vulnerable but also promotes improvement overall.

3. Continuity of primary care is needed to overcome fragmentation and overspecialization among health care practitioners and institutions. Patients need care coordinated by the primary care provider of their choice. Whether evaluating a confused elderly patient or discontinuing aggressive care to a patient with emphysema, a continuing physician-patient relationship is the essential foundation that allows physicians to practice conservative, sensitive, appropriate, cost-effective medicine. Competitive models that encourage patients to switch among competing plans discourage ongoing relationships.⁴¹ Competition also blunts incentives for prevention because the resulting savings are likely to accrue long after the patient has switched to a rival plan.

As practitioners, we do quality work when patients can trust that we will be available with the time, independent judgment, and familiarity with their problems to give them skillful personal attention. Cost-containment efforts designed to limit utilization have counterproductively undermined this primary caring role. Erecting financial barriers to discourage contact, penalizing the primary practitioner for ordering tests and consultations, and intrusive utilization review measures have contributed to growing dissatisfaction with primary care practice.^{42,43}

4. A standardized confidential electronic medical record and resulting database are key to supporting clinical practice and creating the information infrastructure needed to improve care overall. Information technology should allow us to zoom in to focus on the microdetails of why a particular clinical decision was made, as well as give a macro-overview of disease patterns in populations. Its memory should permit panning backward and forward in time, seeing our own patients' past histories, as well as aggregating data to project disease natural history and response to interventions.

Unfortunately, implementation of medical computing has been driven by

insurance/billing imperatives, often ignoring information needs for improved patient care. The Institute of Medicine Committee on Improving the Medical Record has documented the ways that paper-based medical records and computerized laboratory and claims data fail to coalesce into integrated patient care records, capable not only of storing patient data but also of improving the quality of care.⁴⁴ Consider routine yet currently difficult clinical decisions, such as whether a patient's wound requires a tetanus shot, or a positive syphilis serology result requires treatment, or a decreased hematocrit requires further workup. Computer technology should permit us to track patients over time across multiple sites and support higher-quality clinical decision making. Its potential for real-time reminders, prescribing, and bibliographic assistance is vast but unrealized.^{44,45}

Realizing the computer's quality support potential hinges on strong guarantees of personal data confidentiality,⁴⁴ uniformity and integrity of data systems, availability of aggregate data in the public domain,⁴⁶ and minimization of costs, especially for software development and data acquisition. Creating national standards for protection of patients' privacy is one of the most important issues that health system reform must address, yet prospects for federal leadership appear to be confused and uncertain.^{47,48} The United States lags behind other countries in developing a secure clinical information infrastructure because it lacks a unified approach. No public entity has sufficient scope or authority to spearhead this project.⁴⁹

Despite a lengthy section on information automation, the Clinton proposal perpetuates the primacy of financial data to the neglect of clinical information by calling for computerized billing but not computerized patient care records.⁵⁰ Furthermore, managed competition compromises this crucial tool for advancing the public's health by fragmenting information among competing health plans and creates incentives for distortion (ie, "diagnosis creep") that arise when data are linked to financial rewards.⁵¹

5. Health care delivery must be guided by the precepts of continuous quality improvement (CQI). Improved data combined with statistical thinking permit a more scientific practice of medicine. Five ideas are basic to CQI^{22,52,53}:

- Systems improvement: addressing underlying causes of problems rather than inspecting for and micromanaging individual practice variations.
- Teamwork and cooperation: shift from fear, individual blame, and com-

petition toward cooperation to improve interactions within and between organizations.

- Overriding commitment to quality: quality should be the foremost mission and central preoccupation of health system leaders and reform efforts; cost savings derive from this primary commitment to quality.

- Improvement of processes: quality can be continually improved by study, innovation, and simplification of the numerous small steps involved in performing daily tasks, leading to an organizational atmosphere of experimentation and productive change.

- Empowerment of workers and customers: frontline workers must have the authority, resources, and statistical tools to conduct process improvements. Patients' voices must be amplified so that their needs can be better addressed as the central aim of health care.

Current widespread endorsement of CQI belies a continuing focus on external inspection, short-term financial gain as the measure of success, inefficient cost-control measures, and disruptions of physicians' relationships with patients and colleagues as employers and insurers seek the lowest price (*New York Times*. January 24, 1993:1).^{22,41,43,54} Under our current system, each insurer must protect its financial stake through these shortsighted measures that disrupt overall quality. Well situated to exercise such undesirable options, insurers cannot risk the long-term commitments to patients and providers, plus loss of management prerogatives, inherent in the five elements of CQI.

Improving individual providers' care can best be accomplished via supporting their ability to practice quality care coupled with pooled outcomes data and patient feedback. This contrasts to the current punitive, exclusionary, and competitive approaches. The thrust of CQI is to improve the norm of performance rather than to merely identify outliers. Where individual competence and performance deficiencies do exist, they must be conscientiously evaluated and definitively resolved. Continuous quality improvement creates a climate and provides tools to accomplish this more fairly and constructively.

6. New forums for enhanced public accountability are needed to improve clinical quality, to address and prevent malpractice, and to engage practitioners in partnerships with their peers and patients to guide and evaluate care. Patients' and practitioners' mutual desire to redress and prevent suboptimal medical outcomes should make them natural allies. Instead, we are witnessing growing antagonisms. The narrow emphasis

on antagonistic all-or-none approaches, such as lawsuits, or exiting one plan for another, constrains consumers from maximally exercising choices, sharing in decision making, and being genuinely involved in oversight and helping to prevent malpractice.

The Harvard Malpractice Study demonstrated that one in 25 hospitalized patients suffered a disabling iatrogenic injury, one quarter of these as a result of negligence.¹⁶ Reconciling consumers' legitimate demands to improve this performance with the need to protect confidentiality, the need to nurture candid professional introspection, and the current inadequacy of outcomes data for judging quality⁵⁵ poses difficult challenges. This requires trust and cooperation. Although we believe that a no-fault approach to malpractice is most consistent with the logic of CQI (which seeks prevention over blame) and universal coverage (which would already provide lifetime health benefits for iatrogenic injuries, thus obviating the need to sue for such benefits), additional research is needed on questions of deterrence and effectiveness.

Just as the concept of informed consent was once foreign, today's physicians are unaccustomed to thinking constructively about creating a health sphere in which difficult issues and alternatives are openly discussed. Gathering data about care practices and turning those data into information to be shared with peers and the public must become a key ethical duty.^{46,56,57} New vistas for more public yet scientific and collegial oversight include designing and evaluating practice guidelines⁵⁸; evaluation of patient satisfaction, complaint, and outcomes data, such as delayed or missed diagnoses⁵⁹; ombudsman programs; alternative ways to adjudicate malpractice allegations¹⁶; interactive decision-making computer technology⁶⁰; and more meaningful regulatory activities.⁶¹⁻⁶⁴

In the event of a medical mishap or untimely death, patients or relatives want an explanation and an opportunity to ask questions and receive full and honest answers, things we often fail to provide.⁶⁵ For centuries, the autopsy has fulfilled an important "convening" function for the profession to engage such questions and admit mistakes (unfortunately this valuable tool is increasingly neglected).⁶⁶ Practice databases may facilitate an analogous convening forum for bringing together the profession and the public to examine our record, thereby fulfilling our obligations for expanded public accountability.

7. Financial neutrality of medical decision making is essential to recon-

cile distorting influences of physician payment mechanisms with ubiquitous uncertainties in clinical medicine. Payment incentives may distort the quality of medical services. Fee-for-service favors excessive use of services, while capitation payment may encourage undertreatment.^{54,67} To lessen this tendency for physician payment to distort treatment decisions, we must strive to remove personal financial considerations from clinical decision making.

Self-referral by physicians to medical facilities from which they profit is a particularly egregious example of a financial incentive distorting a physician's practice. Physician ownership of diagnostic imaging centers is associated with a referral rate four times that of their noninvesting physician colleagues.⁶⁸ Similarly deplorable are managed care arrangements that directly tie physicians' incomes to withholding referrals for diagnostic tests, specialty consultation, or hospitalization. These arrangements create an unacceptable conflict between a patient's welfare and a physician's financial interest. Even not-for-profit physician networks, portrayed by Clinton plan advocates as alternatives to insurance company or managed care inducements,⁶⁹ perpetuate this conflict of interest when they make providers assume "financial risk" for their patients.

Physicians do need to make more cost-conscious and cost-efficient decisions. However, we reject approaches that expect improved decision making to derive from tinkering with physician rewards. The problem is not insufficient motivation; it is uncertainty which, as many have noted, is ubiquitous in medicine.⁷⁰ Financial incentives to manipulate physicians to do more or less conceal rather than address our clinical knowledge deficits. Physicians respond best to efforts, based on their intrinsic values, that motivate and involve them directly in improving patient care. Even when forced to choose between maximizing patient outcomes over their own financial gain, physicians typically choose to improve care.⁷¹

We recognize that financial neutrality is an ideal. No payment mechanism completely eliminates the influence of payment on treatment. For example, while payment by salary separates day-to-day clinical decisions from financial considerations, it can encourage undertreatment or the avoidance of more complex patients who require expensive care. The current British approach, capitation supplemented with added fees for preventive services and complex cases, illustrates one possible alternative.⁷² Such arrangements at least channel incentives toward mutually agreed on

positive objectives rather than creating conflicts and lack of trust that poison provider-patient relationships.

8. Emphasis should shift from micromanagement of providers' practices to macroallocation decisions. Public control over expenditures can improve quality by promoting regionalization, coordination, and prevention. The uncontrolled proliferation and duplication of expensive technology in our present system, considered by some the sine qua non of US high-quality care, both adds to cost and detracts from quality.

For example, because we have too many mammography machines, each is underutilized. This doubles the cost of each test. As a result, many women cannot afford screening. Thus, because we have too many mammography machines, we have too little breast cancer screening.⁷³

For technically complex procedures, an inverse relationship between volume and mortality rates has generally been observed.⁷⁴ Yet, in the RAND appropriateness study, one fourth of the surgeons performing carotid endarterectomies did only one such procedure per year (on Medicare patients). Three of four surgeons performed fewer than 10 endarterectomies—the average annual number performed by these surgeons was 3.4, a number most would consider too few to maintain proficiency.⁷⁵

Hospitals compete for patients by establishing competing specialized services rather than cooperating to establish one high-quality unit. Two decades of "regional planning" requiring certification for more costly capital expenditures have shown that, absent more direct financial control of capital allocations, such regulatory efforts have not succeeded.⁷⁶

Reorientation toward macroallocation broadens quality horizons in many ways. Establishing "fences" that prospectively define available resources means that less energy and money are wasted micro-managing each decision, and more energy is directed toward overall quality.⁷⁷ A child scolded to clean his plate because there are children starving in Africa may reasonably question the logic. Refusing intensive care unit treatment to an elderly patient because the resources could be better used for prenatal care is similarly hard to justify if we lack a structure to redirect the resources.⁷⁸ Global budgets allow managerial energies to be redirected away from maximizing revenue, improving market share and expansion, toward improving quality.

Competition gurus rely on report cards to allow marketplace choices to drive competition toward better quality. They overestimate the precision of

measurements at the level of the individual provider or health plan (*New York Times*, March 31, 1994:A1, A11)⁷⁹ as well as the higher "leverage" potential of coordinated system improvement. Because existing measures lack precision, cost may end up being the only "objective" measure. Berwick⁸⁰ has argued that quality needs to be induced rather than selected. Measuring performance ought to be aimed more at improving quality than at lubricating competition. Such improvement requires leadership committed to improving each component of the system as well coordinating its various elements.

9. Quality requires prevention. Prevention means looking beyond medical treatment of sick individuals to community-based public health efforts to prevent disease, improve functioning and well-being, and reduce health disparities. These simple goals, articulated in *Healthy People 2000*,⁸¹ remain elusive. Nine preventable diseases are responsible for more than half of the deaths in the United States, yet less than 3% of health care spending is directed toward prevention.⁸²

Private health insurance attaches funding only to individual patients and thus separates the funding role and control from that of representing broader societal interests.⁸³ Insurance companies discovered risk factors, such as hypertension,⁸⁴ yet they used this insight primarily to exclude high-risk individuals. This fragmenting of the community places both sick people and the social causes of disease outside the boundaries of medical care. Although rhetorically "prevention is cheaper than cure," many preventive measures probably increase costs.⁸⁵ This, combined with high patient turnover rates and short-term financial orientation, gives private insurers little incentive to invest in prevention.

Health care financing should facilitate problem solving at the community level. Community-based approaches to health promotion rest on the premise that enduring changes result from community-wide changes in attitudes and behaviors as well as ensuring a healthy environment.^{86,87} Stores that refuse to sell tobacco to minors and promote low-fat foods, schools that teach avoidance of human immunodeficiency virus infection, and a health department that can guarantee clean air and water have a more vital role in ensuring health than does private health insurance. According to Enthoven,⁸⁸ the originator of managed competition, its "goal is to divide providers in each community into competing economic units." Capitation payments to competing providers, in theory designed to motivate prevention, thus

fracture the community and make community-based interventions more difficult because no provider has a population-based purview.

10. Affordability is a quality issue. Effective cost control is needed to ensure availability of quality health care both to individuals and the nation. Good-quality care should not mean expensive care; if it does, it will not be available to most citizens. Flawed cost control reduces quality in many ways. It diverts resources from legitimate health needs, increases iatrogenic risks, and leads to financial barriers to care. These harmful impacts derive both from failure to contain costs and "side effects" of ill-conceived cost-control measures.

Despite multiple cost-control measures during the past two decades, costs continue to escalate. These measures have failed to slow growth of administrative costs, improve efficiency, curb ineffective or marginally effective services, or rein in excessive managerial or professional salaries or profits.^{89,90} Moreover, many cost-control initiatives have encouraged providers to discriminate against less profitable patients and increase their focus on fiscal rather than clinical goals.

The most prevalent approach to containing costs has been patient "cost sharing." Financial barriers have serious quality-impairing potential unless they are adjusted to patients' need for care and ability to pay.^{91,92} It is impossible to erect a barrier high enough to discourage unnecessary care, low enough that needed care is not deterred, and simultaneously adjusted to a patient's discretionary income. Donabedian⁹¹ argues that "even if such adjustments were made, financial barriers would remain too blunt an instrument for assuring a precise calibration of care to need." The RAND Health Insurance experiment confirmed this, finding that "changing economic incentives can alter the amount of care consumed, but implementing such incentives appears to increase or decrease proportionately both appropriate and inappropriate use."⁹⁶

CONCLUSIONS

Private insurers and employers have regularly sought cheaper care and to avoid paying beneficiaries' bills, but have rarely advocated better-quality care for patients.⁹³ Health reformers in the United States should heed lessons learned in other industries. An obsession with cutting costs rather than with quality leads to both suboptimal quality and higher costs. Systems based on trust and common purpose achieve far more than those based on barriers and competition. In addition, solutions that tamper with a

system, increasing complexity, are inferior to those that simplify the way a job is done.⁵²

Health-financing reform provides a pivotal opportunity to improve the quality of health care. We believe that a single-payer national health program provides the most effective framework for implementing the quality-enhancing principles discussed above.

A managed competition strategy, such as that proposed by the Clinton administration and debated in Congress, while designed to provide universal access, has not demonstrated an ability to contain cost and creates a complex structure with separate and unequal multitiered care. Eschewing the easily enforceable budgetary constraints of the single-payer approach necessitates reliance on potentially damaging financial incentives, wasteful micromanagement, and complicated budgetary regulation to minimize spending. Accountability, achievable only if patients are maximally empowered and involved, is structurally nurtured by an open and publicly controlled funding process and impeded under managed competition by multiple intermediaries between providers and patients. Effective implementation of computers in clinical medicine would be retarded by pecuniary interests favoring proprietary data and incompatible software formats and enhanced by public development, ownership, and standards. Global budgeting facilitates directing national resources based on the needs derived from these epidemiologic data, whereas competition ensures that resource allocation will depend on profitability.

No amount of regulation and oversight can breathe quality into a system that is not based on caring professionals working for patients.²⁶ There is little empirical evidence that report cards and regulatory constraints can reliably separate "good" from "bad" care. The technical capabilities of such measures are too imprecise, and incentives for gaming are too great (*New York Times*, March 31, 1994:A1, A11).^{56,79,94} Such measures encourage mindless efforts to meet concrete, but in many cases tangential, criteria while emphasizing sanctions and policing, which run counter to the CQI principles that empower workers to think innovatively about processes. Regulation cannot revitalize a system controlled by financial institutions driven by fiscal incentives that reward both efficiency and fraud, quality care as well as neglect of patients' problems. More regulatory and administrative overhead does mean less time and resources for patient care.

A single-payer system is not a panacea for resolving these problems. What it does

offer is a framework for collectively engaging these issues in a fair, cohesive, and effective fashion. The 10 principles outlined above, while neither a detailed blueprint of how a US single-payer system would work nor a point-by-point critique of alternate reform proposals, suggest that important opportunities to improve quality would be compromised were the United States to settle for a managed competition approach.

Rather than being a code word for the status quo, quality must become a pivotal guide for change. A unified system emphasizing cooperation, democratic accountability, and explicit planning is preferable to a fragmented approach with accountability abdicated to success or failure in the market and planning forsaken in favor of resource allocation based on profitability. Only this preferred approach to system redesign can lead us to a qualitatively better system, one that instills a sense of ownership and pride in its patients and providers.

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Talking Point 7

Other countries have high-quality health care with lower levels of amenable mortality.



"Next, I will use a medium-point roller-ball pen with black ink and, on the anterior side of the upper-left quadrant, two centimetres below the binding staple, begin detailing in bold print the patient's previous medications and treatments relating to present indications for procedure and treatment, as required on this particular health-insurance form."



Variations in Amenable Mortality—Trends in 16 High-Income Nations

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Synopsis

The rate of “mortality amenable to health care”—that is, deaths that are considered preventable with timely and effective health care—declined for people under age 75 across 16 high-income nations between 1997–1998 and 2006–2007. While all countries showed improvement, the United States improved the least.

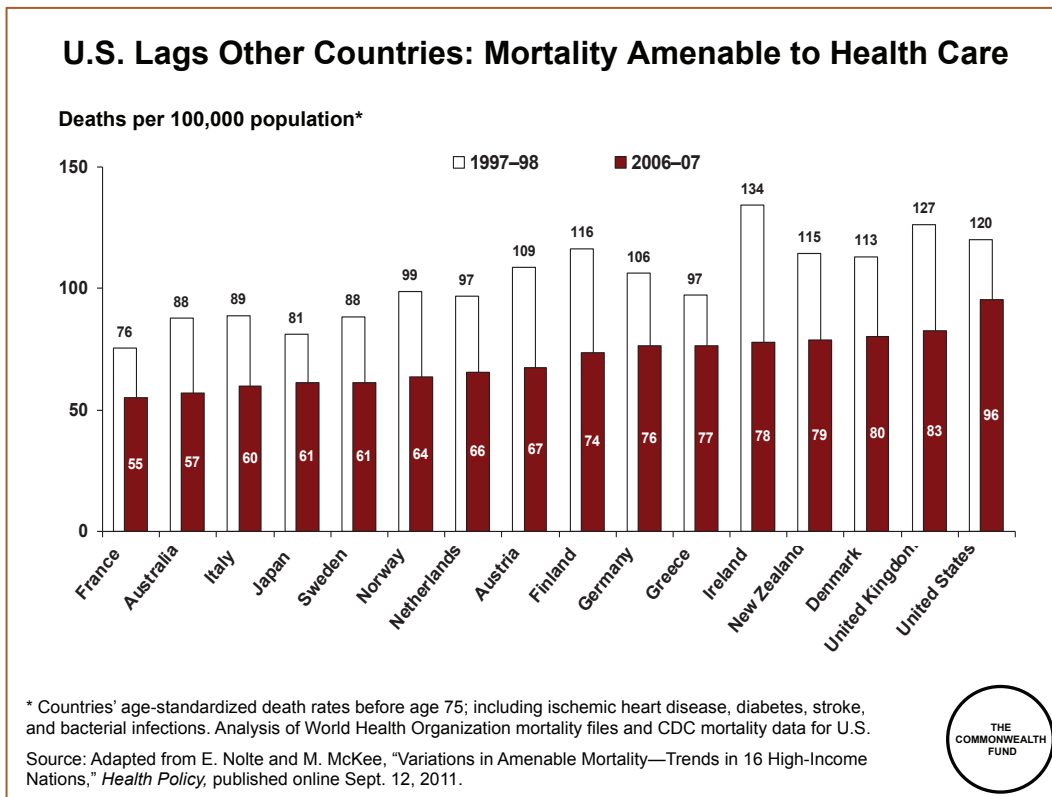
Background

The concept of “amenable mortality” refers to unnecessary and untimely premature deaths from certain causes that are potentially preventable with timely and effective health care. Amenable mortality is one of many indicators used to measure health system performance across nations. This Commonwealth Fund–supported study examined trends in amenable mortality for people under age 75 in 16 high-income countries between 1997–1998 and 2006–2007.

“Ten out of 16 countries experienced a decline of 30 percent or more; however in the U.S. and in Greece this was just over 20 percent. As a consequence, in 2007, levels of amenable mortality in the U.S. were almost twice those seen in France, which had the lowest levels.”

Key Findings

- In 2006–2007, amenable mortality accounted for 24 percent of deaths under age 75 in the 16 countries studied.
- Rates were lowest in France, with 55.0 deaths per 100,000 people, followed by Australia (56.9 per 100,000) and Italy (59.9 per 100,000). The highest levels were in the United States, with 95.5 deaths per 100,000 people, followed by the United Kingdom (82.5 per 100,000) and Denmark (80.1 per 100,000).
- Between 1997–1998 and 2006–2007, levels of amenable mortality fell by 30 percent or more in 10 of the 16 countries; however, the rate in the U.S. fell by only 20.5 percent, the lowest level of decline. Ireland had the highest rate of decline (42.1%).
- If the U.S. had achieved levels of amenable mortality seen in the three best-performing countries—France, Australia, and Italy—84,300 fewer people under age 75 would have died in 2006–2007.



Addressing the Problem

Although amenable mortality fell consistently in all countries, the scale and pace of improvement varied. The United States's poor performance and relatively slow improvement compared with other nations may be attributable to "the lack of universal coverage and high costs of care," the authors conclude.

About the Study

The authors use data from the World Health Organization's mortality database for the periods 1997–1998 through 2006–2007. The countries included in the study are: Australia, Austria, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Sweden, the United Kingdom, and the United States. The causes of death considered amenable to health care include selected childhood infections, treatable cancers, diabetes, cerebrovascular disease and hypertension, and complications of common surgical procedures. The authors also included ischemic heart disease, but only considered 50 percent of such deaths as amenable to health care. The upper age limit was set at 75.

The Bottom Line

If the U.S. had achieved levels of amenable mortality seen in the three best-performing countries—France, Australia, and Italy—84,300 fewer people under age 75 would have died in 2006–2007.

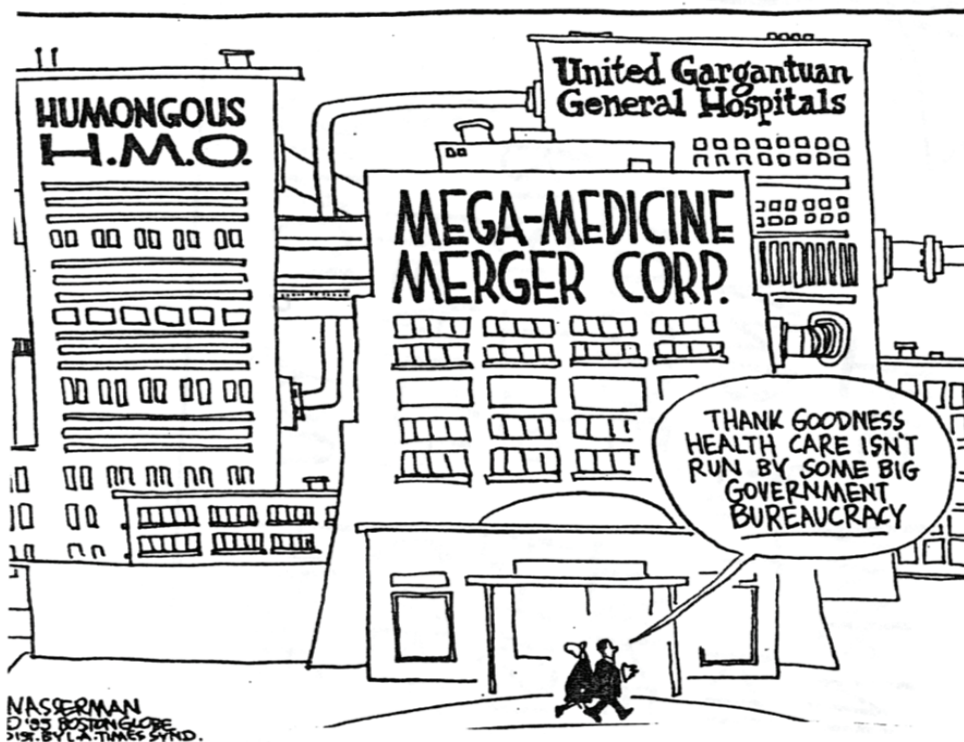
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This summary was prepared by Deborah Lorber.

Talking Point 8

Competition among investor-owned, for-profit entities – including hospitals, HMOs, hospice care, and nursing homes – increases costs and degrades quality.



Competition in a publicly funded healthcare system

Are the UK and other countries right to adopt a market based model for improving their health services? **Steffie Woolhandler** and **David Himmelstein** believe that the appropriate response to the US experience with such policies is quarantine, not replication

Why would anyone choose to emulate the US healthcare system? Costs per capita are about twice the Organisation for Economic Cooperation and Development average. Forty seven million people are completely uninsured. Many others with insurance face high out of pocket costs that hinder care and bankrupt more than a million annually.¹ Mortality statistics lag behind those of most other wealthy countries, and even for the insured population, clinical outcomes and patient satisfaction are mediocre.^{2 3}

This dismal record arises, we contend, from health policies that emphasise market incentives. Even as the public share of health spending in the US has risen to 60% (box) investor owned firms have eclipsed the public, professional, and charitable bodies that previously managed the financing and delivery of care. The development and effect of US policies that mix public funding and private management has wider relevance because politicians in Europe and beyond are pushing analogous schemes.

Failure of private contracting in Medicare

The combination of tax funding and market oriented delivery is exemplified by the US Medicare programme, which has a budget more than double that of the entire NHS. Until 1965, many US employers offered private health cover, but elderly, poor, and disabled people were mostly uninsured and forced to rely on threadbare government institutions or charity. In 1965, Congress established the Medicare social insurance programme for elderly people. Private hospitals gained a vast new market, and investors soon took note, launching for-profit chains that now account for 15% of US acute care

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hospitals. Similarly, for-profit dialysis firms rushed in after the government made everyone with end stage renal disease eligible for Medicare in 1972.

Until the 1970s, private insurers (mostly founded and controlled by doctors and hospitals) and Medicare exerted minimal oversight of care and payment rates. But soaring costs prodded employers and government to assert more control. In the private sector, managed care and health maintenance organisations (HMOs)—most of which were controlled by investors rather than health providers and vigorously intervened in clinical care—rapidly gained a foothold.

In the mid-1980s, Medicare also began encouraging elderly people to enrol in private HMOs. Government paid the private plans a fixed monthly premium for each person who switched from traditional (fee for service) Medicare, with the HMO taking over responsibility for purchasing (or, rarely, providing) care. This arrangement was touted as a means to bring market efficiency to the public programme and to broaden patients' choices.

Unfortunately, the first crop of Medicare HMOs yielded mainly scandal—for example, a major political donor whose plan enrolled thousands of aged patients in Florida (and collected tens of millions of government dollars) but neglected to contract with doctors or hospitals to care for them. He fled prosecution, eventually seeking refuge in Spain.⁴

Subsequently, Medicare applied stricter regulations. The government set the HMOs' payment at 95% of the average monthly cost of care for a patient in traditional Medicare, with the expectation of 5% savings through improved efficiency. Patients who chose an HMO—attracted by free spectacles, lower copayments, and other benefits not covered under traditional Medicare—were free to return to traditional Medicare whenever they wished.

HMOs recognised an opportunity in the skewed distribution of health costs. Most patients use little care—indeed 22% of elderly people cost Medicare nothing at all each year—while the fraction who are severely ill account for the lion's share of expenditures. Astute HMO executives quickly realised windfall profits through cherry picking—recruiting healthier than average older people who brought hefty premiums but used little care—and returning sick patients, and their high medical bills, to the traditional Medicare programme—disrupting care for millions.⁵

HMO marketing departments devised selective

Tax financed health spending in US

- Official figures for 2005 peg government's share of total health expenditure at 45.4%, but this excludes:
Tax subsidies for private insurance, which cost the federal treasury \$188.6bn (£92bn; €129bn) in 2004 and predominantly benefit wealthy taxpayers
Government purchases of private health insurance for public employees such as police officers and teachers. Government paid private insurers \$120.2bn for such coverage in 2005: 24.7% of the total spending by US employers for private insurance
- Government's true share amounted to 9.7% of gross domestic product in 2005, 60.5% of total health spending or \$4048 per capita (out of total expenditure of \$6697)
- By contrast, government health spending in Canada and the UK was 6.9% and 7.2% of gross domestic product respectively (or \$2337 and \$2371 per capita)
- Government health spending per capita in the US exceeds total (public plus private) per capita health spending in every country except Norway, Switzerland, and Luxembourg

recruitment schemes to attract healthy people. These included free fitness club memberships, complementary recruiting dinners at times and places inaccessible to frail elderly people, and advertisements painted on the bottoms of swimming pools. HMOs used financial incentives to encourage doctors to persuade sick patients to leave the HMO—for example, deducting payments to specialists from the primary care doctor's own capitation payment. Hence, a general practitioner could raise her income by advising patients needing hip replacement to leave the HMO, and even convince herself that such advice might benefit patients by freeing them of HMO restrictions on the choice of surgeon and hospital.

HMOs concentrated on ensuring convenient and attractive care for the modest needs of healthy (and profitable) older people. Meanwhile, expensive, ill patients fared poorly. Stroke patients, those needing home care, and others with chronic illnesses got skimpy care, had bad outcomes, and fled HMOs.⁵⁻⁸ And when all else failed and an HMO found itself saddled with too many unprofitably ill patients in a particular county, executives simply closed up shop in that area and returned the patients to traditional Medicare.

By the late 1990s, private HMOs' selective enrolment of healthy elderly people and removal of sick people had raised annual Medicare costs by about \$2bn.⁹ Yet despite this subsidy, HMOs couldn't effectively compete with traditional Medicare. The burden of administrative costs—about 15% in the largest Medicare HMO¹⁰ compared with 3% in traditional Medicare—was too great to overcome. Many HMOs couldn't sustain the extra benefits they had offered at the outset to attract members.

As enrolment fell, HMOs lobbied hard for government rescue, and Congress upped their payments. Currently, Medicare pays private plans \$77bn annually; the cost of caring for the eight million Medicare members who have switched to HMOs is 12% above the cost of caring for comparable patients in traditional Medicare.¹¹

Medicare's HMO contracting programme, originally touted as a market based strategy to improve the public programme's efficiency, has evolved into a multi-billion dollar subsidy for private HMOs. Moreover, the massive financial power amassed by these firms (largely at government expense) is a political roadblock to terminating this failed experiment.

Is private really better?

Other US experiments in using public money to buy care from private firms have also disappointed. Costs for the private insurance that government purchases for public employees have risen even faster than Medicare's.¹² According to comprehensive meta-analyses, investor owned renal dialysis centres (funded almost entirely by the special Medicare programme that covers everyone needing long term dialysis) have 9% higher mortality than non-profit centres despite equivalent costs¹³; and investor owned hospitals—which receive most of their funding from public coffers—have

By the late 1990s private health plans were selectively enrolling healthy people and removing sick ones



2% higher death rates and 19% higher costs than non-profit hospitals.^{14 15} Despite spending less on nurses and other clinical staff, investor owned hospitals spend more on managers.¹⁶

If the failings of private contracting in the US are underappreciated, so is the major success story of recent US health policy: the Veterans Health Administration system. This network of hospitals and clinics owned and operated by government was long derided as a US example of failed Soviet-style central planning. Yet it has recently emerged as a widely recognised leader in quality improvement and information technology. At present, the Veterans Health Administration offers more equitable care, of higher quality, at comparable or lower cost than private sector alternatives.¹⁷

Costs of market forces

Health care's shift from a public service to a business model has raised costs, partly by stimulating the growth of bureaucracy. The proportion of health funds devoted to administration in the US has risen 50% in the past 30 years and now stands at 31% of total health spending, nearly twice the proportion in Canada.¹⁸ Meanwhile, administration has been transmogrified from the servant of medicine to its master, from a handful of support staff dedicated to facilitating patient care to a vast army preoccupied with profitability.

Recent trends elsewhere indicate that the US experience is not unique. The advent of internal markets sharply increased administrative costs in the UK¹⁹ and New Zealand.²⁰ The overheads of Canadian private insurers are 10 times higher than those of public provincial health insurance programmes.¹⁸ In Australia, tax subsidies for private insurance have directed money through private firms, whose overhead is 12% (versus 3.5% in the public programme)²¹; the private hospitals favoured by current policies are about 10%

costlier than public ones.²² As Germany's insurance plans have adopted an increasingly business-like mode of operation, administrative costs have soared, rising 63.3% between 1992 and 2003; meanwhile doctors complain about an avalanche of paperwork.²³

Two factors are at work. Firstly, fragmenting the funding stream, with multiple payers rather than a single government one, necessarily adds complexity and redundancy. Secondly, high administrative costs are intrinsic to the commercial mode (in medical care as elsewhere). Each party to a business transaction must maintain its own detailed accounting records, not primarily for coordination but as evidence in case of disputes.²⁴ Moreover, investors and regulators demand verification by independent auditors, generating yet another set of records. Thus the commercial record replicates each clinical encounter in paper form before, during, and after it takes place in the examining room. The sense of mutual obligation and shared mission to which medicine once aspired becomes irrelevant, even a liability. Hence, the decision to unleash market forces is, among other things, a decision to divert healthcare dollars to paperwork.

Market failure

Market theorists argue that although competition increases administration, it should drive down total costs. Why hasn't practice borne out this theory?

Investor owned healthcare firms are not cost minimisers but profit maximisers. Strategies that bolster profitability often worsen efficiency. US firms have found that raising revenues by exploiting loopholes or lobbying politicians is more profitable than improving efficiency or quality. Columbia/Hospital Corporation of America (HCA)—the biggest US private hospital operator—deliberately submitted inflated bills and expenses to the government, structured business deals so that Medicare picked up the cost of corporate expenses, and paid doctors in return for patient referrals.²⁵ Tenet, the second largest hospital firm, has a long history of legal problems. In the 1980s (when the firm was known as National Medical Enterprises) it gave doctors kickbacks to boost referrals and improperly detained psychiatric patients in order to fill beds, resulting in legal settlements totalling nearly \$700m.²⁶ More recently, Tenet paid hundreds of millions of dollars in fines to resolve claims that it offered kickbacks



Overcrowded US emergency departments turn away an ambulance once a minute, on average

for referrals; claimed excessive sums from Medicare; and that its hospitals performed hundreds of unnecessary cardiac procedures.²⁷⁻²⁹

For-profit executives' incomes also drain money from care. When Columbia/HCA's chief executive officer resigned in the face of fraud investigations into the company, he left with \$324m in company stock. Tenet's chief executive exercised stock options worth \$111m shortly before resigning under pressure from investors in 2003. The head of HealthSouth (the dominant provider of rehabilitation care, mostly paid for by Medicare) made \$112m in 2002, the year before his indictment for fraud (charges of which he was later acquitted) and four years before his conviction on unrelated bribery charges.³⁰

Even chief executives of untainted firms have reaped enormous rewards. Former Harvard geriatrician John Rowe earned \$225 000 a day (including Sundays and holidays) in his 65 months running Aetna health insurance company.³¹ Bill McGuire made \$1.6bn after giving up pulmonary medicine to run UnitedHealthcare.³²

While private contracting has benefited executives and shareholders, it has increased costs and worsened quality because health care cannot meet the fundamental requirements for a functioning market. It is fashionable to view patients as consumers, but seriously ill people (who consume most care) cannot shop around, reduce demand when suppliers raise prices, or accurately appraise quality. They necessarily rely on their doctor's advice on which tests and treatments to "purchase."

Even for sophisticated buyers like government, the "product" of health care is notoriously difficult to evaluate, particularly since doctors and hospitals create the data used to evaluate and reward them. When Tenet hospitals did heart surgery on healthy patients, the surgical outcomes appeared first rate. Even for honest firms, careful selection of lucrative patients and services is the key to success. Conversely, meeting community needs often threatens profitability and hence institutional survival. In the past decade 425 emergency departments—magnets for both very sick and uninsured patients unable to pay—have closed. Overcrowded US emergency departments turn away an ambulance once a minute, on average.³³

Finally, a real market would require multiple independent sellers, with free entry into the marketplace. Yet many hospitals exercise virtual monopolies; half of Americans live in regions too sparsely populated to support real medical competition.

What's driving privatisation?

Evidence from the US is remarkably consistent; public funding of private care yields poor results. In practice, public-private competition means that private firms carve out the profitable niches, leaving a financially depleted public sector responsible for the unprofitable patients and services. Based on this experience, only a dunce could believe that market based reform will improve efficiency or effectiveness. Why do politicians—who are anything but stupid—persist on this track?

Hallmarks of market based reforms

- Market reforms aim to bring medicine into the realm of commerce, where commodities (homogeneous goods or services) are bought and sold for profit
- The first stage of this process is to divide the medical enterprise into discreet, saleable units (commodities), creating buyers and sellers—for example, separating responsibility for financing and providing care or moving from global hospital budgets to fixed payment for a specific procedure
- Once medical commodities are defined, the sellers (medical providers) are forced to compete, giving rise to financial winners and losers
- Because most medical commodities are heterogeneous (patients differ) providers can gain advantage by market segmentation—for example, caring for a relatively healthy subgroup of patients with a particular diagnosis
- Profitable providers attract investors and amass the financial (and political) power to expand their opportunities, while unprofitable ones are driven from the market

Such reforms offer a covert means to redistribute wealth and income in favour of the affluent and powerful. Privatisation trades the relatively flat pay scales in government for the much steeper ones in private industry; the 15-fold pay gradient between the highest and lowest paid workers in the US government gives way to the 2000:1 gradient at Aetna.

But even more important, privatisation of publicly funded health systems uses the public treasury to create profit opportunities for firms needing new markets. US private insurers used to focus on selling coverage to employer sponsored groups and shunned elderly people as uninsurable. Now, with employers cutting health benefits, insurers have turned to public treasuries for new revenues. And why stop at selling insurance? Why not tap into the trillions spent annually on care in hospitals and doctors' offices?

Lessons for other countries

Market fundamentalists conjure visions of efficient medical markets partnered with government oversight and funding to assure fairness and universality. But regulation is overmatched. Incentives for optimal performance align imperfectly, at best, with the real goals of care. Matrices intended to link payment to results instead reward entrepreneurs skilled in clever circumvention. Their financial and political clout grows; those who guilelessly pursue the arduous work of good patient care lose in the medical marketplace.

Health systems in every nation need innovation and improvement. But remedies imported from commerce consistently yield inferior care at inflated prices. Instead we prescribe adequate dosing of public funds; budgeting on a community-wide scale to align investment with health priorities and stimulate cooperation among public health, primary, and hospital care; encouragement of local innovation; explicit empowerment of patients and their families; intensive audit for improvement, not reward or blame; a system based on trust and common purpose; and leadership not by corporations but by "imaginative, inspired, capable and . . . joyous people, invited to use their minds and their wills to cooperate in reinventing the system, itself . . . because of the meaning it adds to the lives and the peace it offers in their souls."³⁴

We thank Howard Waitzkin for useful comments.

Contributors and sources: SW and DUH work as primary care doctors at an urban public hospital. Stimulated by their patients' difficulties in obtaining care, they began research into the inadequacies of US health care. In 1986 they cofounded Physicians for a National Health Program (www.PNHP.org), which advocates non-profit national health insurance in the US. Both authors participated equally in all aspects of this work, which draws on their research, experience as clinicians in the US healthcare system, and extensive literature review. Both serve as guarantors.

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SUMMARY POINTS

The US has long combined public funding with private healthcare management and delivery

Extensive research shows that its for-profit health institutions provide inferior care at inflated prices

US experience shows that market mechanisms undermine medical institutions unable or unwilling to tailor care to profitability

Commercialisation drives up costs by diverting money to profits and fuelling growth in management and financial bureaucracy

The poor performance of US health care is directly attributable to reliance on market mechanisms and for-profit firms and should warn other nations from this path

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The high costs of for-profit care

Steffie Woolhandler, David U. Himmelstein

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As we have written elsewhere,¹ some aspects of life are too precious, intimate or corruptible to entrust to the market. We prohibit selling kidneys and buying wives or judges. But the market has unquestionably gained new territory in recent years, as more and more activities previously performed by government or nonprofit agencies — including interrogating Iraqi prisoners — have been turned over to private enterprise. For ordinary citizens, the drive to privatize is most evident in health care. In the United States, investor-owned firms have come to dominate renal dialysis, nursing home care, inpatient psychiatric and rehabilitation facilities and health maintenance organizations (HMOs). They have made significant inroads among acute care hospitals (now owning about 13% of such facilities), as well as outpatient surgical centres, home care agencies and even hospices. Canada has lagged behind the United States, but by increments the private delivery of publically funded services increases. The for-profit barbarians are at the gates.

Those who favour for-profit health care argue that the profit motive optimizes care and minimizes costs. In this issue P.J. Dev-eaux and colleagues² add to the considerable evidence that this dogma has no clothes. Their meticulous meta-analysis demonstrates a pattern of higher payments for care in private, investor-owned hospitals as compared with private not-for-profit hospitals. The only significant exception was a small study comparing private for-profit hospitals with nominally not-for-profit hospitals run by a private, for-profit firm — in other words, both groups of hospitals in this study were under for-profit management.

The excess payments for care in private for-profit institutions were substantial: 19%. This figure implies that the US\$37 billion that Americans paid for care at investor-owned acute care hospitals in 2001³ would have cost only US\$31 billion at not-for-profit hospitals — a waste of US\$6 billion. But higher acute care (and rehabilitation⁴) hospital payments are not the whole story on investor-owned care. For-profit hospitals and dialysis clinics have high death rates.^{5,6} Investor-owned nursing homes are more frequently cited for quality deficiencies and provide less nursing care,⁷ and investor-owned hospices provide less care to the dying,⁸ than non-for-profit facilities.

Why does investor ownership increase costs? Investor-owned hospitals are profit maximizers, not cost minimizers. Strategies that bolster profitability often worsen efficiency and drive up costs. Columbia/HCA, the largest hospital firm in the United States, has paid the US government US\$1.7 billion in settlements for fraud, the payment of kickbacks to physicians and overbilling of Medicare.⁹ Tenet, the second largest US hospital firm, paid more than

half a billion dollars to settle charges of giving kickbacks for referrals and inappropriately detaining psychiatric patients to fill beds during the 1980s, when the firm was known as NME.¹⁰ In March 2004, Tenet agreed to pay the US government US\$22.5 million to settle one of several cases;¹¹ recent allegations against them have included performing cardiac procedures on healthy patients, offering kickbacks for referrals and exploiting Medicare loopholes to claim hundreds of millions in undeserved payments.

For-profit executives reap princely rewards, draining money from care. When Columbia/HCA's CEO resigned in the face of fraud investigations, he left with a \$10 million severance package and \$324 million in company stock.¹² Tenet's CEO exercised stock options worth \$111 million shortly before being forced out in 2003,¹³ and the head of HealthSouth (the dominant provider of rehabilitation care) made \$112 million in 2002,¹³ the year before his indictment for fraud.

Enormous CEO incomes explain part, but not all, of the high administrative costs at investor-owned health care firms. Investor-owned hospitals spend much less on nursing care than not-for-profit hospitals, but their administrative costs are 6 percentage points higher¹⁴ (presumably reflecting their more meticulous attention to financial details).

High administrative costs and lower quality have also characterized for-profit HMOs,¹⁵ now the dominant private insurers in the United States. Such plans take 19% for overhead, versus 13% in non-profit plans, 3% in the US Medicare program and 1% in Canadian medicare.^{16,17} Strikingly, contracting with private HMOs has substantially increased US Medicare costs. For the past decade, Medicare has paid HMO premiums for seniors choosing to enroll in such private plans. According to official estimates, the HMOs have recruited healthy seniors who, had they not switched to an HMO, would have cost Medicare little — about \$2 billion less annually than the HMOs' premiums.¹⁷ Private plans that were unable to recruit healthy people dropped out of their Medicare contracts, disrupting care for millions of seniors. Washington's response? Sweeten the pot for Medicare HMOs by including \$46 billion to raise HMO payments as part of the recently enacted Medicare prescription drug bill.¹⁸

Why do for-profit firms that offer inferior products at inflated prices survive in the market? Several prerequisites for the competitive free market described in textbooks are absent in health care.^{19,20}

First, it is absurd to think that frail elderly and seriously ill patients, who consume most care, can act as informed

consumers (i.e., comparison-shop, reduce demand when suppliers raise prices or accurately appraise quality). Even less vulnerable patients can have difficulty gauging whether a hospital's luxurious appurtenances bespeak good care.

Second, the "product" of health care is notoriously difficult to evaluate, even for sophisticated buyers like government. Physicians and hospitals create the data used to monitor them; self-interest puts the accuracy of such data into question. By labelling minor chest discomfort "angina" rather than "chest pain," a US hospital can garner both higher Medicare payments and a factitiously improved track record for angina treatment. It is easier and more profitable to exploit such loopholes than to improve efficiency or quality.

Even for honest firms, the careful selection of lucrative patients and services is the key to success, whereas meeting community needs often threatens profitability. For example, for-profit specialty hospitals offering only cardiac or orthopedic care (money-makers under current payment schemes) have blossomed across the United States. Most of these new hospitals duplicate services available at nearby not-for-profit general hospitals, but the newcomers avoid money-losing programs such as geriatric care and emergency departments (a common entry point for uninsured patients). The profits accrue to the investors, the losses to the not-for-profit hospitals, and the total costs to society rise through the unnecessary duplication of expensive facilities.

Finally, a real market would require multiple independent buyers and sellers, with free entry into the marketplace. Yet, many hospitals exercise virtual monopolies. A town's only hospital cannot compete with itself, but can use its market power to inflate its earnings. Not surprisingly, for-profit hospital firms in the United States have concentrated their purchases in areas where they can gain a large share of the local market. Moreover, many health care providers and suppliers enjoy state-conferred monopolies in the form of licensure laws for physicians and hospitals and patent protection for drugs. Additionally, government pays most health costs — even in the United States.²¹ Indeed, public funding for health care in the United States exceeds total health spending in Canada on a per capita basis. It's an odd market that relies largely on public funds.

Privatization results in a large net loss to society in terms of higher costs and lower quality, but some stand to gain. Privatization creates vast opportunities for powerful firms, and also redistributes income among health workers. Pay scales are relatively flat in government and not-for-profit health institutions; pay differences between the CEO and a housekeeper are perhaps 20:1. In US corporations, a ratio of 180:1 is average.²² In effect, privatization takes money from the pockets of low-wage, mostly female health workers and gives it to investors and highly paid managers.

Behind false claims of efficiency lies a much uglier truth. Investor-owned care embodies a new value system that severs the community roots and Samaritan traditions of hospi-

tals, makes physicians and nurses into instruments of investors, and views patients as commodities. Investor ownership marks the triumph of greed.

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Payments for care at private for-profit and private not-for-profit hospitals: a systematic review and meta-analysis

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β See related article page 1814



Fast-tracked article

Abstract

Background: It has been shown that patients cared for at private for-profit hospitals have higher risk-adjusted mortality rates than those cared for at private not-for-profit hospitals. Uncertainty remains, however, about the economic implications of these forms of health care delivery. Since some policy-makers might still consider for-profit health care if expenditure savings were sufficiently large, we undertook a systematic review and meta-analysis to compare payments for care at private for-profit and private not-for-profit hospitals.

Methods: We used 6 search strategies to identify published and unpublished observational studies that directly compared the payments for care at private for-profit and private not-for-profit hospitals. We masked the study results before teams of 2 reviewers independently evaluated the eligibility of all studies. We confirmed data or obtained additional data from all but 1 author. For each study, we calculated the payments for care at private for-profit hospitals relative to private not-for-profit hospitals and pooled the results using a random effects model.

Results: Eight observational studies, involving more than 350 000 patients altogether and a median of 324 hospitals each, fulfilled our eligibility criteria. In 5 of 6 studies showing higher payments for care at private for-profit hospitals, the difference was statistically significant; in 1 of 2 studies showing higher payments for care at private not-for-profit hospitals, the difference was statistically significant. The pooled estimate demonstrated that private for-profit hospitals were associated with higher payments for care (relative payments for care 1.19, 95% confidence interval 1.07–1.33, $p = 0.001$).

Interpretation: Private for-profit hospitals result in higher payments for care than private not-for-profit hospitals. Evidence strongly supports a policy of not-for-profit health care delivery at the hospital level.

Separating issues of funding (i.e., who pays for health care) and delivery (i.e., who owns and administers the institutions providing care) helps to inform debates about health care systems. Funding for health care can come through private sources, primarily administered through insurance companies, or through public payment, by governments using tax dollars. Care can be delivered at private for-profit institutions that are owned by investors; private not-for-profit institutions that are owned by communities, religious organizations or philanthropic groups; or public health care institutions owned and administered by the government.

Canadian hospitals are publicly funded. In terms of delivery, although they are commonly referred to as public institutions, Canadian hospitals are almost all owned and operated by private not-for-profit organizations.¹ Canadian policy-makers continue to consider an expansion of private for-profit health care delivery, including private for-profit hospitals.¹

We have previously demonstrated higher risk-adjusted death rates among patients receiving care at private for-profit hospitals than among patients at private not-for-profit hospitals in a comprehensive systematic review.²

Uncertainty remains, however, about the economic implications of these forms of health care delivery. Studies evaluating the economics of health care delivery usually evaluate costs, charges or payments for care.³ From the perspective of a service provider, costs represent how much the provider paid to provide care, charges represent how much the provider billed the payer, and payments represent how much the provider received for the care received. In the context of publicly funded health care, the central policy question is how much government will pay for care delivered by private for-profit versus private not-for-profit providers. We therefore undertook a systematic

review and meta-analysis to address the following question: is there a difference in payments for patient care received at private for-profit compared with private not-for-profit hospitals?

A systematic review and meta-analysis of studies comparing mortality rates of private for-profit and private not-for-profit hospitals

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Abstract

Background: Canadians are engaged in an intense debate about the relative merits of private for-profit versus private not-for-profit health care delivery. To inform this debate, we undertook a systematic review and meta-analysis of studies comparing the mortality rates of private for-profit hospitals and those of private not-for-profit hospitals.

Methods: We identified studies through an electronic search of 11 bibliographical databases, our own files, consultation with experts, reference lists, PubMed and SciSearch. We masked the study results before determining study eligibility. Our eligibility criteria included observational studies or randomized controlled trials that compared private for-profit and private not-for-profit hospitals. We excluded studies that evaluated mortality rates in hospitals with a particular profit status that subsequently converted to the other profit status. For each study, we calculated a relative risk of mortality for private for-profit hospitals relative to private not-for-profit hospitals and pooled the studies of adult populations that included adjustment for potential confounders (e.g., teaching status, severity of illness) using a random effects model.

Results: Fifteen observational studies, involving more than 26 000 hospitals and 38 million patients, fulfilled the eligibility criteria. In the studies of adult populations, with adjustment for potential confounders, private for-profit hospitals were associated with an increased risk of death (relative risk [RR] 1.020, 95% confidence interval [CI] 1.003–1.038; $p = 0.02$). The one perinatal study with adjustment for potential confounders also showed an increased risk of death in private for-profit hospitals (RR 1.095, 95% CI 1.050–1.141; $p < 0.0001$).

Interpretation: Our meta-analysis suggests that private for-profit ownership of hospitals, in comparison with private not-for-profit ownership, results in a higher risk of death for patients.

Research

Recherche

From the Departments of

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Quality of Care in Investor-Owned vs Not-for-Profit HMOs

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HEALTH MAINTENANCE ORGANIZATIONS (HMOs) have been both derided and defended. Studies comparing HMOs with fee-for-service care have generally found similar outcomes for the average, healthy enrollee. However most,¹⁻⁸ but not all,^{9,10} studies have found worse outcomes in managed care for vulnerable groups (ie, the seriously ill, the mentally ill, and the poor). Both patients and physicians are less satisfied with care delivered through HMOs.¹¹⁻¹⁶

Most research on quality of care in HMOs has examined nonprofit group- and staff-model plans. Yet other types of HMOs have accounted for most of the recent increase in enrollment. Between 1985 and 1998 the proportion of HMO members enrolled in investor-owned plans increased from 26% to 62%; between 1980 and 1998 the market share of group- and staff-model plans decreased from 81% to 12%.^{17,18}

In investor-owned plans, executives' primary fiduciary duty is to shareholders, who are vitally concerned with profits but unlikely to receive their medical care in the plan. However, a major concern is whether the quest for profit compromises the quality of care.

METHODS

We analyzed data from the National Committee for Quality Assurance's (NCQA's) Quality Compass 1997 including the Health Plan Employer Data

Context The proportion of health maintenance organization (HMO) members enrolled in investor-owned plans has increased sharply, yet little is known about the quality of these plans compared with not-for-profit HMOs.

Objective To compare quality-of-care measures for investor-owned and not-for-profit HMOs.

Design, Setting, and Participants Analysis of the Health Plan Employer Data and Information Set (HEDIS) Version 3.0 from the National Committee for Quality Assurance's Quality Compass 1997, which included 1996 quality-of-care data for 329 HMO plans (248 investor-owned and 81 not-for-profit), representing 56% of the total HMO enrollment in the United States.

Main Outcome Measures Rates for 14 HEDIS quality-of-care indicators.

Results Compared with not-for-profit HMOs, investor-owned plans had lower rates for all 14 quality-of-care indicators. Among patients discharged from the hospital after myocardial infarction, 59.2% of members in investor-owned HMOs vs 70.6% in not-for-profit plans received a β -blocker ($P < .001$); 35.1% of patients with diabetes mellitus in investor-owned plans vs 47.9% in not-for-profit plans had annual eye examinations ($P < .001$). Investor-owned plans had lower rates than not-for-profit plans of immunization (63.9% vs 72.3%; $P < .001$), mammography (69.4% vs 75.1%; $P < .001$), Papanicolaou tests (69.2% vs 77.1%; $P < .001$), and psychiatric hospitalization (70.5% vs 77.1%; $P < .001$). Quality scores were highest for staff- and group-model HMOs. In multivariate analyses, investor ownership was consistently associated with lower quality after controlling for model type, geographic region, and the method each HMO used to collect data.

Conclusions Investor-owned HMOs deliver lower quality of care than not-for-profit plans.

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and Information Set (HEDIS) (version 3.0) and HMO accreditation surveys.¹⁹ The data reflect plan characteristics and performance for 1996.

HEDIS is a set of standardized quality, utilization, financial, and other indicators designed to allow comparisons of managed care plans. A total of 329 HMOs (248 investor-owned and 81 not-for-profit) in 45 states and the District of Columbia provided at least some HEDIS quality, utilization, and financial measures. Forty-one additional plans that provided data to the NCQA declined to allow release of their data.

The NCQA's HEDIS data set includes information on ownership status (investor-owned or not-for-profit),

model type (group, staff, independent practice association, network, mixed, or other), and region (New England, mid Atlantic, south Atlantic, east north Central, west north Central, south Central, Mountain, or Pacific). If data on HMO ownership in 1996 were missing, we consulted InterStudy's HMO Directory,²⁰ or telephoned the plan. Firms that owned more than 1 HMO submitted

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Table 1. Characteristics of Health Plans Analyzed and of All US Health Maintenance Organizations*

	Plans Providing NCQA Quality and Administrative Data	All US Health Maintenance Organizations ²³
Total US health maintenance organization enrollment	56	100
Ownership		
For-profit	75.4	68.4
Nonprofit	24.6	25.9
Unknown	...	5.8
Model type		
Independent practice association	36.8	51.1
Network	6.7	9.5
Group	7.3	5.5
Staff	1.8	3.1
Mixed	45.9	29.7
Other or unknown	1.5	1.2
Location†		
New England	8.2	6.3
Mid Atlantic	17.6	12.3
South Atlantic	23.1	19.6
East north Central	17.3	19.0
West north Central	7.9	7.8
South Central	15.8	15.0
Mountain	8.5	9.9
Pacific	9.1	9.9

*All values are percentages. The total number of plans in the United States was 781 with 329 providing National Committee for Quality Assurance (NCQA) quality and administrative data. Ellipses indicate data not available.

†Several plans operate in more than 1 region.

Table 2. Quality-of-Care Indicators: Investor-Owned vs Not-for-Profit Health Maintenance Organizations for 1996

	Investor-Owned Rate, % (No. of Plans Submitting Data)	Not-for-Profit Rate, % (No. of Plans Submitting Data)	P Value
Immunization completion rate for 2-year-olds			
Diphtheria pertussis tetanus (4 doses)	76.5 (212)	82.8 (68)	<.001
Oral poliovirus (3 doses)	83.0 (212)	87.4 (68)	<.002
Mumps measles rubella (1 dose)	86.1 (212)	90.7 (67)	<.001
<i>Haemophilus influenzae</i> type B (3 doses)	82.4 (212)	89.2 (68)	<.001
Hepatitis B (3 doses)	78.8 (208)	83.0 (65)	<.02
All of the above	63.9 (207)	72.3 (68)	<.001
Immunization completion rate for 13-year-olds*	51.9 (169)	59.1 (63)	<.02
Mammography rate within 2 y for women aged 52-69 y	69.4 (229)	75.1 (80)	<.001
Papanicolaou test rate within 3 y for women aged 21-64 y	69.2 (230)	77.1 (75)	<.001
First trimester prenatal care rate	83.1 (223)	88.5 (70)	<.001
Women receiving postpartum checkup within 42 d of delivery	56.9 (192)	59.6 (69)	.25
β-Blocker prescription filled for patients discharged after a myocardial infarction with no evidence of contraindication†	59.2 (98)	70.6 (49)	<.001
Patients with diabetes who are receiving insulin or oral hypoglycemic agent and who had an eye examination in past year	35.1 (224)	47.9 (80)	<.001
Rate of outpatient follow-up within 30 d for patients older than 6 y hospitalized with mental disorder	70.5 (154)	77.1 (58)	<.001

*Includes mumps measles rubella, hepatitis B, tetanus diphtheria, and varicella if not immune.

†Contraindication defined as *International Classification of Diseases, 9th Revision* diagnosis of insulin-dependent diabetes mellitus, asthma, heart block greater than first degree, sinus bradycardia, congestive heart failure, left ventricular dysfunction, or chronic obstructive pulmonary disease.

separate data for each plan or line of business (eg, Kaiser Foundation Health Plan Inc operated 13 distinct plans that each reported HEDIS data). Our unit of analysis was the individual plan.

Many HMO firms failed to supply the NCQA with accurate data on total enrollment, Medicaid or Medicare enrollment, patient demographics, or plan age (in some cases the HMO apparently reported data for the entire firm rather than for individual plans or lines of business). Hence, we could not reliably analyze these variables.

We examined all 14 quality-of-care variables included under the NCQA's rubric "Effectiveness of Care" for which data were available. For instances in which data included implausible rates (eg, an immunization rate of 0%), we recoded the value as missing. The NCQA requires HMOs to follow a detailed guide defining each measure and specifying standards for data submission.²¹ Plans may collect data to calculate their rates from administrative records (administrative method), or supplement administrative data with chart reviews (hybrid method). The hybrid method, used by more than 90% of plans, usually results in higher reported rates.

For each quality indicator, the administrative method requires that the plan identify the target population: patients continuously enrolled in the HMO for an appropriate period (eg, 1 year for Papanicolaou tests and immunizations, 2 years for mammograms, or 7 days after hospital discharge for β-blocker usage after myocardial infarction) and for whom the particular intervention is clinically appropriate (eg, women aged 52-69 years for mammography). For most indicators, patients whose coverage was interrupted for up to 45 days per year are also included. The HMO then searches administrative records (eg, payment and pharmacy files) for evidence that the intervention occurred. If no evidence of the intervention is found, the HMO may choose to search for exclusions (eg, a history of bilateral mastectomy would exclude the need for mammography). The reported rate is the number of patients receiving

the intervention divided by the number eligible and without exclusions.

For the hybrid method, the plan chooses a sample of eligible patients from among the target population identified as in the administrative method. For most measures, a minimum sample size of 411 patients (after all exclusions) is required. For plans that have previously documented high rates for a particular intervention, somewhat smaller sample sizes are allowed (because for any given sample size the SE of the percentage becomes smaller when rates rise above 50%). For instance, the hybrid method requires a minimum sample size of 313 for a plan that had previously documented a Papanicolaou test rate of 75%. As in the administrative method, the plan initially searches administrative records for evidence that the intervention occurred or that the patient should be excluded from the measure. If administrative records do not give evidence of the intervention or of an exclusion, the plan reviews patient charts for such evidence and calculates a rate using the administrative method.

We also examined total costs per member per month and the medical loss

ratio, defined as total medical and hospital expenses divided by total revenues from premiums, fee-for-service, Medicare, and Medicaid.

We used *t* tests to evaluate differences in univariate comparisons of rates. We performed multiple linear regressions to analyze the association of ownership status with quality indicators after control for region (8 categories), the method used by the plan to collect data (administrative or hybrid), and HMO model type (6 categories). All analyses used SAS software.²²

RESULTS

TABLE 1 compares the characteristics of the 329 plans we analyzed with those of all HMOs in the United States. Compared with plans in the NCQA sample, nonparticipating plans were smaller, newer, more likely to be group or mixed model, and to be located in the east north Central region.²³ Similar proportions of investor-owned and not-for-profit plans submitted quality-of-care data.²³

In univariate comparisons, investor-owned plans had lower rates for all 14 quality indicators (TABLE 2). The large-

est differences were in the 2 measurements of the quality of care for patients with serious medical illnesses. Among patients discharged from the hospital after a myocardial infarction (with no concurrent diagnosis contraindicating β -blocker therapy), on average 59.2% of patients in investor-owned HMOs compared with 70.6% of patients in not-for-profit plans filled a prescription for a β -blocker ($P<.001$). Among patients with diabetes receiving insulin or oral hypoglycemic agents, on average 35.1% of those in investor-owned plans vs 47.9% in not-for-profit plans had received an eye examination within the past year ($P<.001$).

Investor-owned plans also had lower rates of all routine preventive services that we evaluated (Table 2). The rate of completion of immunizations for 2-year-olds averaged 63.9% in investor-owned HMOs vs 72.3% in not-for-profit plans ($P<.001$); the proportion of women aged 52 to 69 years who had undergone mammography within the past 2 years averaged 69.4% in investor-owned plans and 75.1% in not-for-profit plans ($P<.001$). Staff- and group-model HMOs had higher scores on virtually all quality-of-care in-

Table 3. Quality-of-Care Indicators by Health Maintenance Organization Model Type for 1996*

	Rate, % (No. of Plans Submitting Data)					
	Staff	Group	IPA	Network	Mixed	Other
Immunization completion rate for 2-year-olds						
Diphtheria pertussis tetanus (4 doses)	93.0 (6)	84.3 (23)	77.5 (103)	75.7 (19)	77.2 (124)	72.4 (5)
Oral poliovirus 3 doses	95.3 (6)	89.6 (23)	83.4 (103)	80.9 (19)	83.8 (124)	77.2 (5)
Mumps measles rubella (1 dose)	96.0 (6)	89.6 (23)	87.6 (103)	84.2 (19)	86.6 (124)	85.0 (4)
<i>Haemophilus influenzae</i> type B (3 doses)	95.3 (6)	87.3 (23)	84.8 (103)	82.7 (19)	82.6 (124)	80.8 (5)
Hepatitis B (3 doses)	86.3 (6)	87.2 (23)	79.7 (103)	77.9 (16)	78.8 (120)	71.2 (5)
All of the above	81.0 (6)	75.7 (23)	65.0 (104)	64.8 (19)	64.7 (118)	58.2 (5)
Immunization completion rate for 13-year-olds†	84.0 (4)	66.5 (22)	50.8 (82)	43.4 (17)	54.7 (104)	39.0 (3)
Mammography rate within 2 y for women aged 52-69 y	82.7 (6)	76.5 (23)	69.3 (117)	71.3 (21)	70.9 (137)	65.8 (5)
Papanicolaou test rate within 3 y for women aged 21-64 y	83.7 (6)	76.8 (24)	70.4 (109)	72.0 (22)	70.2 (139)	66.6 (5)
First trimester prenatal care rate	93.5 (6)	90.0 (24)	83.7 (102)	82.7 (20)	83.6 (136)	86.6 (5)
Women receiving postpartum checkup within 42 d of delivery	67.1 (5)	60.5 (24)	57.9 (104)	60.6 (18)	55.6 (106)	60.4 (4)
β -Blocker prescription filled for patients discharged after a myocardial infarction with no evidence of contraindication‡	71.1 (2)	75.2 (19)	62.4 (49)	53.5 (12)	61.6 (63)	55.1 (2)
Patients with diabetes who are receiving insulin or oral hypoglycemic agent and who had an eye examination in past year	62.8 (6)	53.5 (24)	33.4 (115)	39.9 (21)	39.2 (133)	24.4 (5)
Rate of outpatient follow-up within 30 d for patients older than 6 y hospitalized with mental disorder	83.2 (3)	78.8 (21)	72.1 (81)	68.2 (11)	71.2 (93)	73.3 (3)

*Percentages are rates. IPA indicates independent practice association. $P<.01$ for differences between group- and staff-model plans and all other models except for receiving postpartum checkup within 42 days of delivery ($P = .12$).

†Includes mumps measles rubella, hepatitis B, tetanus diphtheria, and varicella if not immune.

‡Contraindication defined as *International Classification of Diseases, 9th Revision* diagnosis of insulin-dependent diabetes mellitus, asthma, heart block greater than first degree, sinus bradycardia, congestive heart failure, left ventricular dysfunction, or chronic obstructive pulmonary disease.

Table 4. Multivariate Analysis* of Association of Investor Ownership With Quality-of-Care Indicators for 1996

	Parameter Estimate for Investor Ownership†	P Value
Immunization completion rate for 2-year-olds		
Diphtheria pertussis tetanus (4 doses)	-5.0 (-8.4 to -1.5)	.005
Oral polio virus (3 doses)	-4.3 (-7.4 to -1.2)	.007
Mumps measles rubella (1 dose)	-4.3 (-6.6 to -2.0)	<.001
<i>Haemophilus influenzae</i> type B (3 doses)	-6.2 (-9.1 to -3.3)	<.001
Hepatitis B (3 doses)	-3.3 (-6.9 to 0.3)	.07
All of the above	-5.2 (-9.2 to -1.2)	.01
Immunization completion rate for 13-year-olds‡	-4.5 (-10.3 to 1.2)	.12
Mammography rate within 2 y for women aged 52-69 y	-4.8 (-6.9 to -2.7)	<.001
Papanicolaou smear rate within 3 y for women aged 21-64 y	-6.6 (-9.4 to -3.7)	<.001
First trimester prenatal care rate	-4.5 (-8.0 to -1.0)	.01
Women receiving postpartum checkup within 42 d of delivery	-4.8 (-10.4 to 0.9)	.10
β-Blocker prescription filled for patients discharged after a myocardial infarction with no evidence of contraindication§	-6.5 (-13.2 to 0.1)	.06
Patients with diabetes who are receiving insulin or oral hypoglycemic agent and who had an eye examination in past year	-9.7 (-13.0 to -6.3)	<.001
Rate of outpatient follow-up within 30 d for patients older than 6 y hospitalized with mental disorder	-5.6 (-10.2 to -0.9)	.02

*Analysis controlled for health maintenance organization model type, data reporting method, and geographic region.

†Negative value indicates that investor-ownership predicts lower score. Values are expressed as change in rate associated with for-profit ownership (95% confidence interval).

‡Includes mumps measles rubella, hepatitis B, tetanus diphtheria, and varicella if not immune.

§Contraindication defined as *International Classification of Diseases, 9th Revision* diagnosis of insulin-dependent diabetes mellitus, asthma, heart block greater than first degree, sinus bradycardia, congestive heart failure, left ventricular dysfunction, or chronic obstructive pulmonary disease.

dicators (TABLE 3). Plans in New England scored better than plans in other regions for most indicators (data not shown).

In multivariate analyses controlling for model type, method of data collection, and region, investor ownership was consistently associated with poorer quality (TABLE 4). For instance, investor ownership was associated with decreases in rates of mammography of 4.8 percentage points and of eye examinations for patients with diabetes of 9.7 percentage points. As expected, plans that used the hybrid method for data collection tended to report higher rates (eg, 1.4% higher for mammography). Staff- and group-model types, as well as a location in New England, continued to predict higher quality for most quality indicators.

Total cost per member, per month averaged \$128.00 in investor-owned plans vs \$127.50 in not-for-profit plans ($P = .88$). The medical loss ratio (percentage of revenues spent on medical and hospital services) averaged 80.6% in investor-owned HMOs vs 86.9% in not-for-profit plans ($P = .05$). Hence, spending on profit and administrative overhead

was about 48% higher in investor-owned plans (19.4% vs 13.1% for not-for-profit plans).

COMMENT

Investor-owned HMOs now dominate the managed care market.^{24,25} However, our study suggests that these plans are associated with reduced quality of care. Although total costs are similar in investor-owned and not-for-profit plans, the latter spend more on patient care. Group- and staff-model plans that offer better quality are also being eclipsed. The medical market is not rewarding quality and efficiency.

Our findings are consistent with the scant previous reports on the influence of investor ownership on HMO quality. An analysis of 1994 data from 76 HMOs found that investor-owned plans provided less preventive care.²⁶ Comparisons of HMO quality published in popular magazines have reached similar conclusions.^{27,28} Investor-owned Medicare HMOs have higher disenrollment rates²⁹ and lose more beneficiary appeals than not-for-profit plans.³⁰ Physi-

cians in Minneapolis rated care at a staff-model plan better than at 2 network model HMOs.³¹ A Centers for Disease Control and Prevention analysis of 4 preventive services, using HEDIS data that excluded Medicaid and Medicare recipients, found regional patterns similar to those we report.³²

Moreover, the differences we observed in this study appear to be clinically significant. For instance, if all 23.7 million American women between ages 50 and 69 years were enrolled in investor-owned, rather than not-for-profit plans, an estimated 5925 additional breast cancer deaths would be expected (based on our finding of a 4.8% difference in screening rates, and previous estimates that biennial screening in this age group would result in 52 fewer breast cancer deaths by age 80 years per 10 000 women screened).³³ Similarly, since β-blockers reduce death rates in myocardial infarction survivors by 23%,³⁴ their underuse in investor-owned plans suggests that many such patients may die needlessly.

However, the HEDIS quality indicators we analyzed have serious shortcomings.³⁵ No indicators appraise the outcomes of care. Most focus on relatively inexpensive preventive services and exclude patients who are not continuously enrolled. Few HEDIS measurements address care for seriously ill or chronically ill patients who are financially unattractive to HMOs and at risk for underservice. Medicare HMOs apparently encourage sick patients to disenroll³⁶ and selectively recruit and enroll healthy individuals.³⁷⁻³⁹ Hence, our finding that the 2 quality indicators relevant to patients with serious medical illnesses showed the sharpest differences is particularly disturbing. Moreover, plans may narrowly focus quality improvement efforts on the few services that HEDIS assesses, causing an upward drift of HEDIS scores that may not accurately reflect global quality trends. For instance, HMO administrators may push clinicians to increase mammography rates, but deny them the time needed to perform optimal clinical breast examinations, patient educa-

tion, or other clinical activities that HEDIS does not measure. Hence, the usefulness of HEDIS quality indicators as surrogate measures of the global quality of care may deteriorate over time.

Despite these limitations, the data we analyzed are the best available currently. They encompass plans that account for more than half of the HMO enrollment in the United States. The data were collected and reported in standard formats and have been found accurate in federal audits.⁴⁰ Unfortunately, even fewer data may be available in the future. In 1997 (the data that we analyzed, which reflects 1996 figures but was submitted in 1997) only 41 plans that submitted information to the NCQA declined to allow release of their data; in 1998, 155 plans refused data release.

Inaccurate reporting could explain our findings only if not-for-profit plans

consistently inflated their quality measures while investor-owned HMOs did not. We cannot rule out the possibility that systematic differences in market characteristics, patients, physicians, HMO data systems, or other unmeasured confounders could influence our results.

Our findings are worrisome in light of previous research comparing the quality of care in HMO and fee-for-service settings. Most such comparisons examined care in not-for-profit group- and staff-model HMOs, which we found to have higher quality scores than the average plan. Moreover, the best of this research was carried out before market pressures forced non-profit HMOs to increase financial incentives and productivity pressures for physicians, abandon community rating, and implement other measures that

mimic investor-owned plans.^{24,25} In these nonprofit, group- and staff-model HMOs of an earlier era, the average healthy patient received similar or slightly more preventive care, but vulnerable patients fared poorly^{1,2,4-7} (eg, the risk of dying for sick, poor patients was increased by 21%).¹

Our findings suggest that the decade-old experiment with market medicine is a failure. The drive for profit is compromising the quality of care, the number of uninsured persons is increasing, those with insurance are increasingly dissatisfied, bureaucracy is proliferating, and costs are again rapidly escalating. We believe national health insurance deserves a second look.^{41,42}

Disclaimer: Data analyzed in this study were from NCQA's Quality Compass and are published with the permission of the NCQA. The views expressed are those of the authors and not of NCQA.

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In the Business of Dying: Questioning the Commercialization of Hospice

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In our society, some aspects of life are off-limits to commerce. We prohibit the selling of children and the buying of wives, juries, and kidneys. Tainted blood is an inevitable consequence of paying blood donors; even sophisticated laboratory tests cannot supplant the gift-giving relationship as a safeguard of the purity of blood. Like blood, health care is too precious, intimate, and corruptible to entrust to the market.¹

Introduction

The hospice movement in the United States is approximately 40 years old. During these past four decades, the concept of holistic, multidisciplinary care for patients (and their families) who are suffering from a terminal illness has evolved from a modest, grassroots constellation of primarily volunteer-run and community-governed endeavors to a multimillion dollar industry where the surviving nonprofits compete with for-profit providers, often publicly traded, managed by M.B.A.-trained executives, and governed by corporate boards. The relatively recent emergence of for-profit hospice reflects an increasing commercialization of health care in the United States, the potentially adverse impact of which has been well documented.² Here we refer to the general threats against medicine's ethical foundations that are made by health care organizations attempting to marry the "fundamental objective" of commerce, i.e., "achieving an excess of revenue over costs" so as to ensure profits for owners and investors, with the delivery of quality care to vulnerable consumers who are often compromised in their ability to make decisions.³ In the case of hospice, of course, the "customer" suffers from a terminal condition, which intensifies ethical concerns regarding the priority of the patient's needs (ahead of profit-taking), the importance of dealing with patients "honestly, competently, and compassionately," and the avoidance of any conflicts of interest "that could undermine public trust in the altruism of medicine."⁴

Infusing these ethical reflections, as is always the case either explicitly or implicitly in considerations of health care policy in the United States, are business concerns about how best to deliver services consistent with notions of free market competition and entrepreneurialism.⁵ As capitalism's proponents have argued,

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profit incentives and commercial freedoms have promoted efficiencies and innovations across a wide diversity of industries.⁶ Health care, however, is unlike other commodities, and the U.S. market for health services is not an unadulterated market of purely private players. Rather, the health care of a nation is a matter of public concern, and taxpayers underwrite many of the direct costs.⁷ Desires to lower overall health care costs — always in tension with a variety of ethical considerations relating to individual patient care and public health — are theoretically shared by all partici-

of for-profit medicine and commercial interests as dominant trends in U.S. health care, which we address in Part I. In the last decade, this general trend in the direction of “market-driven medicine” has prompted the rapid rise of the for-profit hospice industry, as discussed in Part II of this article. Given the individual and social value that the nonprofit hospice sector has proven to be and the conflicting interests inherent in for-profit medicine, we wonder whether the original philosophy of hospice as embodied in its earliest nonprofit and community-based manifestations is

Although published research in this area is limited, evidence indicates, as one would expect given the pressures to deliver a return on investment, that for-profit facilities, and especially publicly-traded chain providers, generate higher revenues than their nonprofit competitors. These cost savings and profit margins appear to flow primarily from business decisions relating to selective recruitment of a longer-term, increasingly non-cancerous, population of Medicare patients and the payment of lower salaries and benefits to less-skilled staff.

pants and stakeholders in the U.S. system, including patients, providers, investors, regulators, and taxpayers. Yet, the extent to which the Medicare hospice benefit and corresponding proliferation of hospice service providers has resulted in overall systemic cost savings in the end-of-life context (as was envisioned by the original policymakers) remains contested.⁸

However, specific financial comparisons between for-profit and nonprofit hospice providers have been more conclusive. Although published research in this area is limited, evidence indicates, as one would expect given the pressures to deliver a return on investment, that for-profit facilities, and especially publicly-traded chain providers, generate higher revenues than their nonprofit competitors.⁹ These cost savings and profit margins appear to flow primarily from business decisions relating to selective recruitment of a longer-term, increasingly non-cancerous, population of Medicare patients and the payment of lower salaries and benefits to less-skilled staff.¹⁰ Additionally, large chain hospice providers may realize further increased revenues as a result of efficiencies in their administration of regulatory processes and delivery of services across multi-state locations.¹¹

Many patients and families experience hospice as a preferred pathway to dying well and a social consensus regarding the merits of hospice has been reached among many over the last few decades.¹² This same time period has also been marked by the emergence

potentially threatened by a creeping commercialism across the entire hospice industry. Indeed, hospice has always been “an attempt to transform the harmful practices of medicine-driven technology and profit” into a “compassionate caring” that restores a “sincere empathy, respect, and spiritual significance to the complex business of relieving suffering at the end of life.”¹³ Accordingly, Part III of this article raises critical questions rooted in ethical concerns that will require continuing vigilance and further study as the hospice industry confronts increasing pressures to provide holistic, quality care, and pain management for those who are dying, while balancing commercial considerations related either to maintaining merely sustainable margins in an increasingly competitive market or to satisfying investors and shareholders who seek to realize maximum profits from Medicare’s per diems.

Part I: The Emergence of For-Profit Health Care

Observers of the practice of medicine in America have been sounding alarms about the creeping commercialization of U.S. health care for at least the last 30 years. Writing in 1980, Arnold Relman, then editor of the *New England Journal of Medicine*, described what he alarmingly viewed as the “new medical-industrial complex” of for-profit corporations in the business of providing health care services to patients.¹⁴ Dr. Relman was particularly concerned about the emergence

of proprietary hospitals and nursing homes, as well as home care, diagnostic laboratory, and hemodialysis services.¹⁵

Hemodialysis, in fact, presented a “particularly interesting example of stimulation of private enterprise by public financing of health care.”¹⁶ Relman was referring to the rapid expansion of the patient population receiving long-term hemodialysis following Congress’s decision in 1972 to cover treatment of end-stage renal disease under Medicare.¹⁷ Fueled by the flow of federal funds, the for-profit dialysis industry mushroomed from nearly non-existent in the early 1970s to a 40% market share by 1980.¹⁸

By 2002, 75% of dialysis services were provided by private, for-profit facilities, and early fears about compromises in patient care were being realized in the form of increased risk for premature patient death.¹⁹ Similarly, more recent research seems to confirm that Medicare erythropoietin (or EPO, a drug used to treat anemia resulting from kidney disease) reimbursements — the second-largest source of dialysis facility income — are incentivizing large, for-profit chain facilities to administer dosages of the drug in excess of the clinical guidelines.²⁰

Writing for the Institute of Medicine in 1983, Bradford Gray outlined the controversy surrounding the widespread emergence of for-profit medicine during the 1970s.²¹ Proponents of the investor-owned trend in health care heralded the efficiencies, innovations, and fiscal discipline associated with business management practices designed to grow market share and maximize profits consistent with free market principles.²² Critics, however, argued that large and enduring percentages of uninsured and underinsured Americans evidenced market failure. They argued that conflicts of interest are constitutive of for-profit business models that are premised upon financial incentives designed to encourage ever-expanding consumption of finite and expensive goods.²³ Such conflicts of interest have, for example, resulted in well-documented cases of unnecessary medical services and treatments, often bloating systemic health care costs at tax-payers’ expense.²⁴ In extreme cases, pressures to meet profit goals and satisfy investor expectations have resulted in fraud prosecutions of for-profit health care providers, most infamously realized in the cases of Tenet Healthcare and Healthcare Corporation of America (HCA), although the nonprofit sector has not been immune from government prosecution arising out of illicit reimbursement practices.²⁵ It is precisely because of congressional cost concerns related to fraudulent billing and other

improper over-utilization of Medicare-reimbursable services that anti-kickback legislation, the Stark laws, enforcement of the False Claims Act, and other regulatory efforts have proliferated from the mid-1970s through the most recent health care reforms of 2010.²⁶

Additionally, the emergence over the last 30 years of for-profit health providers has prompted concerns about whether ownership status has any correlation to the quality of care provided. On this point the case of nursing homes is illustrative. Relatively consistent data indicate that differences in care do exist between

The conflicting interests inherent in the incentive structures of for-profit health care endeavors demand careful scrutiny. This is particularly important in the end-of-life hospice context.

for-profit and nonprofit nursing home providers “as measured by staffing ratios, quality-of-care and quality of life deficiencies, advance care planning discussions, complaints per home, and, in some cases, adverse health outcomes.”²⁷ The conflicting interests inherent in the incentive structures of for-profit health care endeavors demand careful scrutiny. This is particularly important in the end-of-life hospice context, to which we now turn our attention.

Part II: Rise of the For-Profit Hospice Industry

The modern hospice movement traces its origins to the mid-20th century work of physician Dame Cicely Saunders, who founded St. Christopher’s Hospice in 1967 in a suburb of London.²⁸ The hospice concept was imported to America by Florence Wald, the dean of the Yale School of Nursing, who invited Dame Saunders to teach the concepts of holistic treatment of patients’ physical, spiritual, and psychological well-being at Yale in the late 1960s. At the same time, the work of Dr. Elizabeth Kubler-Ross was recalibrating social understandings of death and arguing that perhaps death did not have to be seen as the failure of medicine to keep a patient alive.²⁹ Out of Kubler-Ross’s work, the “right” of patients to participate in decisions impacting their death process began to gain traction.³⁰

All of this, of course, emerged during a time in which physician paternalism was still the dominant ethos and emerging end-of-life medical technologies were fostering liminal conditions — “twilight zones of suspended animation where death commences while

life, in some form, continues"³¹ — in which the possibility of postponing death was creating novel bioethical dilemmas.

Nevertheless, the earliest American hospices were "small, volunteer dominated community-based programs which provided spiritual support and palliative care to terminal patients and their families," and they began to spread rapidly during the 1970s.³² While fewer than 60 hospices existed in 1978, that number had expanded to over 400 by 1981 and the movement soon captured the attention of policymakers in Washington.³³

Congress created the Medicare hospice benefit in 1982 for patients diagnosed as "terminally ill."³⁴ To qualify for the benefit, a patient's "attending" physician, as well as the hospice physician, must certify that the patient has "a life expectancy of 6 months or less."³⁵ For hospice providers caring for a terminally ill patient, the federal benefit pays a fixed per diem.³⁶ The amount of the daily rate is determined by the appropriate category of care required by the patient: (1) routine home care; (2) continuous home care; (3) inpatient respite care; or, (4) general inpatient care. Importantly, however, the daily rate is paid by Medicare regardless of the services actually provided by the hospice provider on any given day and even if no services are provided. Services covered include nursing care, physician services, pain management, medical social services, counseling (including bereavement services), physical therapy, occupational therapy, speech-language pathology, dietary counseling services, and homemaking services.³⁷

According to Greer and Mor, leaders of the pioneering National Hospice Study, this legislation emerged at the behest of dual constituencies: care givers and entrepreneurs.³⁸ Care givers, particularly non-M.D. professionals, desired a legal mandate requiring that hospice services be built around interdisciplinary teams, including volunteers, spiritual counselors, and other "low-technology providers."³⁹ Entrepreneurs, on the other hand, envisioned the development of "profit-making hospice chains" and lobbied for the benefit on the basis that it would create a new opportunity to further the competitive, proprietary interests that Relman had characterized as the emerging "new medical-industrial complex" just two years earlier.⁴⁰ As early as 1985, Greer and Mor worried that the "smaller, volunteer-oriented hospices, which have contributed significantly to the image of hospice in our country, may be unable to survive in a commercialized environment."⁴¹

Throughout the 1990s, the per diem rates paid by Medicare steadily increased, as end-of-life issues, including advanced directives and palliative care, received greater attention from researchers, health

care practitioners, and public policy officials. By 2006, approximately 40% of Medicare beneficiaries who died were cared for during their final days or weeks of life under the auspices of a hospice program where specialists working in interdisciplinary teams treated their symptoms, relieved their pain, and provided a range of therapeutic services and other types of support, including, housekeeping duties for those electing to die at home.⁴²

As originally conceived, there was "a strong expectation that hospice services would result in lower costs to the Medicare program than conventional medical interventions at the end of life."⁴³ Yet, as with every other sector of the health care economy, hospice costs have risen at alarming rates in recent years. According to the Government Accountability Office, between 1992 and 2002, "Medicare payments for hospice care increased fivefold, to about \$4.5 billion,...the number of Medicare patients increased fourfold, to approximately 640,000,...[and] the number of Medicare-participating hospices grew by almost 90 percent to 2,275."⁴⁴

Just six years later, hospice expenditures more than doubled to exceed \$11 billion, Medicare beneficiaries receiving hospice services (for increasingly longer periods of time) topped one million, and the number of hospice locations rose to greater than 3,300, with for-profit providers accounting "almost entirely" for this increase.⁴⁵ In fact, from 2001 to 2008, the for-profit hospice industry grew 128 percent, while the nonprofit hospice sector only grew by 1 percent and government-owned hospice grew by 25 percent.⁴⁶ The result of these trends is that now approximately 52 percent of hospices are for-profit, 35 percent are nonprofit, and 13 percent are owned by the government.⁴⁷

Given this shifting ownership landscape and the forecasts for continued growth in patient population and federal reimbursements, we are troubled by the potential for ethical compromises as the delivery of hospice services becomes an increasingly commercial endeavor. To those concerns we now turn.

Part III: Questioning the Commercialization of Hospice

As originally conceived, hospice was marked by a holistic approach to patient care, animated by altruistic motivations that placed ultimate priority on care for the dying individual and her family. The concept has been accepted and embraced by large segments of the American public and policymakers because its hallmark practices are understood to be rational and compassionate components of end-of-life health care. Yet, the increasing dominance of for-profit providers, beholden to the expectations of investors, introduces a

profit-making concern that threatens to compete with patient care for ultimate priority. Perhaps the dual goals of profit-taking and care-giving can be aligned theoretically in ways that neither would be compromised. But in the actual business practices of for-profit managers and care decisions of for-profit providers, there is at a minimum some cause for heightened scrutiny.

How Do For-Profit Hospice Providers Market Their Services and Recruit Their "Customers"?

In recent years the media have begun to report anecdotally about the manner in which some hospice providers have so successfully grown their business. For instance, VITAS Hospice Services, LLC, the largest provider of hospice services in the United States (operating 46 facilities across 15 states and the District of Columbia), reportedly sends its patient recruiters into nursing homes equipped with pens and coffee cups for staff and then pays a commission to those recruiters who successfully sign-up patients for VITAS's services.⁴⁸ A rival hospice provider was indicted for allegedly paying nursing home operators \$10 per day to assist in patient recruitment efforts and paying physicians \$89 a month to certify patients as hospice eligible without examining the patient or reviewing medical records.⁴⁹ The extent to which some hospice providers may be employing "community education representatives"⁵⁰ to market hospice services and recruit hospice patients demands vigilance in the form of either industry self-policing or government oversight.⁵¹ In fact, the latter option was recommended in 2009 by the Medicare Payment Advisory Commission (MedPAC), which said the Office of Investigator General should investigate "financial relationships between hospices and long-term care facilities [] that may represent a conflict of interest and influence admissions to hospice;...the appropriateness of enrollment practices...; [and] the appropriateness of hospice marketing materials and other admissions practices."⁵²

Hospice-eligible patients, by definition, are facing a relatively imminent death. In this context, many patients and their family-member advocates are experiencing myriad emotions potentially compromising their judgment and ability to comprehend the implications of entering into hospice. Given these heightened vulnerabilities, potential hospice candidates are more susceptible to unscrupulous marketing techniques and over-promising with regard to services that will be provided. If a patient recruiter stands to personally benefit in the form of a commission or bonus for reaching and maintaining enrollment goals,⁵³ such an incentive potentially conflicts with the candor required for a potential hospice patient to make an informed

decision about whether to forego continued curative medical treatments, a necessary condition of enrollment in hospice.

Moreover, concerns exist over whether hospice providers, regardless of ownership structure, intentionally select patients who are likely to have longer lengths of stay and thus result in the generation of greater revenues. Because of Medicare's current payment policy, which pays the same flat rate per diem (regardless of the patient's specific terminal illness), a tempting incentive is created to target patients who will require less expensive care over a longer period of time. As a 2009 MedPAC report to Congress noted, "A strong correlation exists between length of hospice stay and profitability.... The concern is that some new hospice providers, which are predominantly for-profit, may be pursuing a business model based on maximizing length of stay and thus profitability."⁵⁴ The 2008 MedPAC report found that "hospices with longer lengths of stay are more profitable [because] length of stay in a for-profit hospice is about 45% longer than the length of stay in a not-for-profit facility."⁵⁵ While seemingly counterintuitive, it turns out that the longer a patient remains in hospice, the less costly it is for the provider to care for her because over the course of a lengthy hospice arrangement, the patient's baseline of necessary care becomes less rigorous and time intensive. The current Medicare policy makes sense if one considers that hospice was designed to offer only palliative, not curative, treatment. When the Medicare benefit was created in 1982, the concept of palliative medicine was not disease specific.⁵⁶ Therefore, while the revenue from federal reimbursements remains constant, costs associated with patient care do not.⁵⁷ As Lindrooth and Weisbrod illustrate, hospice costs during approximately the first four days of patient care are relatively high, due to the additional time required to transition a patient and relevant family members into the hospice program and attend to their emotional and physical needs. Likewise, a patient's final days prior to death are relatively more time and resource intensive, and therefore more costly.

During the intervening time period, however, costs of care are relatively lower and constant. Of course, these intermediary costs escalate in the context of patients requiring more expensive palliative care, such as chemotherapy, radiation, or recreational services, which explains why hospice providers needing to keep investors satisfied, seeking to realize a profit, or simply struggling to maintain a margin that will sustain the organization's mission, are rationally tempted to selectively recruit patients with non-cancer diagnoses, for example.⁵⁸ This "U-shaped" cost function and lin-

ear revenue stream creates a “financial incentive for all hospices...to maximize the duration” of a patient’s stay in order to distribute the higher costs at the beginning and end of treatment and increase overall profits.⁵⁹

Although MedPAC has called for an adjustment to the reimbursement structure that would pay relatively more per day for those higher costs associated with the entrance of a patient into hospice and for

— respond to the Medicare reimbursement incentive by selectively admitting patients with primary diagnoses, recent curative care, and ages that would suggest probabilities for a longer life trajectory, and correspondingly higher profits.⁶³

Additional data published by Lorenz et al. examined 67 for-profit hospices and 109 nonprofit hospices operating in California to determine whether

Without changes to the current reimbursement structure, coupled with measures to ensure greater accountability in the use of these benefits, we are concerned about the potential for a more dominant hospice provider to serve selectively a higher percentage of patients with a non-cancer diagnosis. The patient population at such a hospice could thereby average significantly longer and more lucrative periods of time during which the provider would realize a great return on the Medicare per diem payments for those patients, while potentially shifting a disproportionate share of the more costly short-term patients to hospice providers with a broader commitment to a community beyond those with an ownership interest.

those higher costs associated with the patient’s death, these payment changes will not be implemented before 2013.⁶⁰ Meanwhile, the current per diem paid by Medicare remains constant throughout a patient’s stay, regardless of how much time is actually devoted to patient care and the delivery of hospice services.⁶¹ Without changes to the current reimbursement structure, coupled with measures to ensure greater accountability in the use of these benefits, we are concerned about the potential for a more dominant hospice provider to serve selectively a higher percentage of patients with a non-cancer diagnosis. The patient population at such a hospice could thereby average significantly longer and more lucrative periods of time during which the provider would realize a great return on the Medicare per diem payments for those patients, while potentially shifting a disproportionate share of the more costly short-term patients to hospice providers with a broader commitment to a community beyond those with an ownership interest.⁶²

While all hospice providers, regardless of ownership status, are incentivized to “game” the system according to the current reimbursement policy, Lindrooth and Weisbrod analyzed admission data at 104 for-profit and 534 religious nonprofit hospice providers over a three-year period in an effort to determine whether patterns of patient selection could be identified. Their data demonstrate that for-profit hospices — more so than the religious nonprofit hospices they also studied

patterns in patient population could be determined.⁶⁴ This study concluded that for-profit hospice providers treat a disproportionate number of patients who were either previously in a long-term care facility and/or suffer with a non-cancer diagnosis. Moreover, these researchers confirmed that a higher percentage of for-profit patients do in fact remain in hospice longer than 90 days.⁶⁵

Longer stays, of course, are not intrinsically problematic. Indeed, getting a patient into hospice for a longer and more managed death process can be more conducive to the holistic and comprehensive care for both patient and family that hospice promises. Recent research also suggests greater systematic cost savings can result from longer stays in hospice.⁶⁶ Moreover, a variety of reasons unrelated to fraudulent or nefarious practices may explain differences in enrollment patterns, including a good faith effort on the part of for-profit providers to include terminal, non-cancer patients who have been traditionally under-represented among hospice populations.⁶⁷

Do Commercial Concerns Compromise the Quality of Care Delivered by Hospice Providers?

Interdisciplinary, coordinated care has been a hallmark of the hospice philosophy of holistic end-of-life care since the movement’s inception. Moreover, government reimbursement via Medicare is conditioned upon the hospice organization’s provision of a team that includes at least one physician, one reg-

istered nurse, and one social worker.⁶⁸ The inclusion of such expertise is necessary to coordinate the medical, psychological, and social components of hospice care “core services” as described in federal law, which pursuant to an individual patient’s written plan, must include availability to physician services, skilled nursing care, dietary or nutritional services, psychological counseling (including bereavement therapy), spiritual care, and medical social services.⁶⁹ “Noncore” services include physical therapy, speech therapy, occupational therapy, continuous home care, and household/home-maker services.⁷⁰ Hospice providers, however, have discretion with regard to staffing specifics.

At least one study has demonstrated that staffing patterns do differ among hospice providers in ways that correlate to ownership status, although no correlations established patterns of adverse or compromised patient care.⁷¹ The research noted above by Lorenz et al. examining California hospices in the late 1990s also found that for-profit hospices provided a mix of overall less-skilled nursing care, but failed to establish whether quality of patient care in general suffered as a result of these staffing decisions.⁷² In fact, this same study found “no significant difference in the actual number of skilled nursing visits per patient day provided by for-profit hospices (0.33) versus not-for-profit hospices (0.35).”⁷³

More recent data from researchers at Yale found “substantial variation by hospice ownership type in the patterns of interdisciplinary staff.”⁷⁴ Again, while correlations to adverse impact on quality of care were not proven, the study did find that for-profit hospice facilities typically employ less expensive labor, including fewer registered nurses, fewer medical social workers, and fewer clinicians.⁷⁵

In addition to staffing differences, other research suggests that patterns of care do differ among hospice providers with different ownership structures, although, again, evidence of wide-spread adverse or compromised patient care does not exist.⁷⁶ However, when adjustments are made for differences in patient diagnosis, disability, gender, and other variables, patients of for-profit hospices have been shown to receive significantly fewer types of services than do patients of nonprofit hospices, including continuous home care and bereavement services. Due to the difficulties in assessing the relative value of specific services to individual patients, even these limited studies fail to establish an overall diminished quality of care at for-profit providers. However, these findings did prompt one set of researchers to speculate regarding how differences in “origin” influence the hospice endeavor:

One possible interpretation [for why for-profits provide a narrower range of services when compared with nonprofit hospices] is that the different patterns of care are the result of the differing origins of the for-profit and nonprofit hospice. The traditional, nonprofit hospice emerged as a philosophy of care that emphasized psychosocial support, spiritual care, the use of volunteers and family, and symptom management. The for-profit hospices that have emerged more recently, however, might not be as strongly rooted in this traditional hospice philosophy.⁷⁷

To be clear, Carlson et al. are not suggesting that evidence exists of inferior care at for-profit hospice providers. Rather, these researchers are highlighting the reality that a more commercialized, entrepreneurial approach to hospice may privilege business practices and financial responsibilities to investors in ways that challenge their concomitant commitment to ethical health services and duties to patients. Again, while the financial bottom line driving for-profit hospice providers is the creation of profits, this pressure may not be all that different from that facing the nonprofit hospice provider attempting to bolster enough revenues not only to keep the doors open, but also to expand services and maintain competitive employee compensation. The quote above by Carlson et al., however, reminds us that business management principles focused on increasing market share, reducing labor costs, and creating economies of scale may become problematic to the extent they threaten to compromise the death experience of the patient, i.e., the “traditional hospice philosophy.” To be sure, more data examining potentially negative correlations between business practices and patient care are needed.

Conclusion

Charles F. von Gunten, editor-in-chief of the *Journal of Palliative Medicine*, recently opined that perhaps “there really is no difference in the care delivered by hospices of differing tax status,” and therefore, on the question of profit versus not-for-profit, he concluded: “Who cares?”⁷⁸ Von Gunten’s position was bolstered by the recognition that current data defining quality and measuring outcomes in the realm of hospice support neither the demonization nor the canonization of either ownership structure. To be sure, our review of the literature confirms the necessity of more sophisticated studies of business practices and patient care throughout the hospice industry, with a keen eye trained on how ethical issues are addressed when they intersect with commercial interests and financial incentives.

The concerns raised in this article, particularly regarding recruitment of patients and patterns of patient care, are intended to highlight ethical conflicts suggested by an increasingly commercialized health services marketplace that is infused with large sums of federal money accompanied by increased regulatory oversight. Yet, a number of questions suggest the importance of continued research, deliberation, and oversight in this area: Will the patient's experience of hospice services (as envisioned by Dame Saunders, i.e., marked by a fundamentally altruistic system of organization and governance) be compromised by the practices of profit-driven competition and additional costs associated with government regulation?⁷⁹ What non-financial costs may be borne by patients, their family, and hospice providers if the hospice industry's traditional emphasis on principles of community welfare maximization cannot be reconciled to more individual notions of profit maximization? How, in ways that are not unnecessarily paternalistic, will the hospice industry guard against the exploitation of an unsuspecting population that is particularly vulnerable? The challenge for medical professionals, health care businesspersons, academic researchers, policy-makers, and government regulators going forward will be to address these questions in a manner that will preserve the spirit of hospice as it was originally envisioned and as it has come to be understood, experienced, and relied upon by much of the public.

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 24. J. F. Blumstein, "The Fraud and Abuse Statute in an Evolving Health Care Marketplace: Life in the Health Care Speakeasy," *American Journal Law & Medicine* 22, no. 2-3 (1996): 205-231, at 207. Professor Blumstein cites numerous studies confirming the overutilization that results from perverse economic incentives. See, generally, Office of the Inspector Gen., Dept. of Health & Human Serv., *Financial Arrangements Between Physicians and Health Care Businesses*, Medicare & Medicaid Guide ¶ 37,838, at 19,933 (May 1989) ("The Medicare patients of referring physicians who owned clinical laboratories received forty-five percent more clinical laboratory services than all Medicare patients in general."); General Accounting Office, *Referrals to Physician-Owned Imaging Facilities Warrant HCFA's Scrutiny*, GAO/HHS-95-2, at 10 (1994); and B. J. Hillman et al., "Frequency and Costs of Diagnostic Imaging in Office Practice - A Comparison of Self-Referring and Radiologist-Referring Physicians," *New England Journal of Medicine* 323, no. 23 (1990): 1604-1608, at 1604 ("Studies of the use of diagnostic imaging equipment done in 1990 and 1994 showed that patients of physicians who had an ownership interest in such equipment utilized some equipment 400% more than the patients of nonowning physicians."); J. M. Mitchell and E. Scott, "Physician Ownership of Physical Therapy Services: Effects on Charges, Utilization, Profits, and Service Characteristics," *JAMA* 268, no. 15 (1992): 2055-2059, at 2057 ("Physicians having ownership interests in physical therapy clinics or radiation therapy centers similarly recommended patient visits to such facilities fifty percent more than did other physicians.") Additionally, Marc Rodwin's book, *Medicine, Money, and Morals: Physicians' Conflicts of Interests* (1993) includes copious evidence of ways in which physician self-interest results in Medicare abuse. For example, see Rodwin at 97 (citing a December 17, 1987, personal letter from Jim Codo, a medical laboratory salesperson who claimed that "where a high percent of Medicare recipients reside, there is a correspondingly high percent of physicians invested in laboratory ownership arrangements. The government in allowing such [practices]...might as well issue the physician owners their own money press. The physician controls the demand for services, owns the supply of the services, and is guaranteed payment for services by the government.") and 215 (citing to 18 published studies by academic researchers and government regulators between 1970 and 1992 as evidence "that physicians who make referrals to medical facilities that they either own or have a financial interest in recommend more (or more expensive) medical tests and procedures than do physicians without a financial interest.").
 25. K. Eichenwald, "HCA Is Said to Reach Deal on Settlement of Fraud Case," *New York Times*, December 18, 2002, at A1 (reporting on an agreement with the Justice Department to pay more than \$880 million to settle a long-running inquiry into accusations of health care fraud). See also E. T. Wood, "Feds Win \$19.4M in Lawsuit over Renal Care Group Medicare Practices," *NashvillePost.com* website, March 23, 2010, available at <http://www.nashvillepost.com/news/2010/3/23/feds_win_194_million_in_lawsuit_over_renal_care_group_medicare_practices> (last visited February 25, 2011). The most egregious example of for-profit fraud specifically in the hospice industry would be that involving SouthernCare Hospice Press Release, *Frohsin & Barger, LLC, Alabama Hospice Provider Settles Whistleblower Lawsuit for \$24.7 Million*, January 16, 2009) (on file with authors). As for fraud in the nonprofit sector, the False Claims Act Legal Center lists St. Barnabas Healthcare and its chain of eight nonprofit hospitals in New Jersey, as 23rd on its list of top False Claim Act fraud feosors since 1986. See <<http://www.taf.org/top20/htm>> (last visited January 20, 2011). For a specific hospice example, see also D. Frantz, "Hospice Boom Is Giving Rise to New Fraud," *New York Times*, May 10, 1998, at A1 (reporting on an indictment of Joseph A. Kirschenbaum and his "not-for-profit" hospice Samaritan Care that allegedly defrauded Medicare out of \$28.5 million).
 26. See generally, J. E. Perry, "An Obituary for Physician-Owned, Specialty Hospitals," *Health Lawyer* 23, no. 2 (December 2010): 24-34.
 27. M. D. A. Carlson, W. T. Gallo, and E. H. Bradley, "Ownership Status and Patterns of Care in Hospice: Results from the National Home and Hospice Care Survey," *Medical Care*

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28. See R. E. Enck, "Hospice – Palliative Medicine: A Look Back and Into the Future," *American Journal of Hospice and Palliative Medicine* 26, no. 6 (2009): 429-431.
29. E. Kubler-Ross, *On Death and Dying* (New York: Scribner Classics, 1997): at 31.
30. D. S. Greer, "Hospice: From Social Movement to the Health Care Industry," *Transactions of the American Clinical and Climatological Association* 97 (1986): 82-87.
31. *Rasmussen v. Fleming*, 741 P.2d 674, 678 (Ariz 1987).
32. See Greer, *supra* note 30, at 83.
33. See Enck, *supra* note 28, at 429.
34. *Tax Equity and Fiscal Responsibility Act of 1982*, Pub. L. No. 97-248, § 122, 96 Stat. 324 (1982).
35. 42 C.F.R. § 418.22(b) (2009).
36. 42 C.F.R. § 418.302 (2009).
37. 42 C.F.R. § 418.64-106 (2009).
38. D. S. Greer and V. Mor, "How Medicare Is Altering the Hospice Movement," *Hastings Center Report* 15, no. 5 (1985): 5-9, at 5-6.
39. *Id.*
40. *Id.* and Relman, *supra* note 14.
41. See Greer and Mor, *supra* note 38.
42. J. K. Iglehart, "A New Era of For-Profit Hospice Care – The Medicare Benefit," *New England Journal of Medicine* 360, no. 26 (2009): 2701-2703, at 2701.
43. Medicare Payment Advisory Commission, *Rep. to the Congress on Medicare Payment Policy*, March 2009. But see *supra* note 8.
44. U.S. Gov't Accountability Office, GAO-05-42, *Medicare Hospice Care: Modifications to Payment Methodology May Be Warranted I* (October 2004).
45. MedPAC, "Report to Congress: Medicare Payment Policy," *Hospice*, March 2010, at 141; MedPAC, "Report to Congress: Reforming the Delivery System, Evaluating Medicare's Hospice Benefit," June 2008, at 216.
46. *Id.* (MedPAC 2010), at 147. Approximately 1600 for-profit hospice programs currently operate in the United States compared to 1200 not-for-profit hospice organizations. C. F. von Gunten, "Profit or Not-For-Profit: Who Cares?" *Journal of Palliative Medicine* 11, no. 7 (2008): 954.
47. See MedPAC (2010), *supra* note 45, at 147.
48. D. Koehn, "The Business of Hospice Gets Corporate Attention," *Tampa Tribune*, January 18, 2004, at 1. Such practices are reminiscent of pharmaceutical industry tactics. See *infra* note 51.
49. See also D. Frantz, "Hospice Boom Is Giving Rise to New Fraud," *New York Times*, May 10, 1998, at A1.
50. B. Moos, "Business of Dying Undergoes Change: For-Profit Firms Enter Small Agencies' Turf as Hospice Care Grows," *Dallas Morning News*, May 22, 2005, at 1D.
51. Prior evidence of a variety of unsavory marketing tactics employed by pharmaceutical company representatives provides a cautionary tale, well documented by Dr. Marcia Angel, former editor of the *New England Journal of Medicine*, in her 2004 book *The Truth about the Drug Companies*. The hard sell, questionably accurate information, and gift incentives can go a long way toward building market share, but not necessarily toward empowering a potential patient to make a decision that is in her best interest and consistent with the hospice philosophy.
52. See MedPAC (2010), *supra* note 45, at 144 and 147. The report notes that financial incentives "may have led to inappropriate utilization of the benefit among some hospices."
53. *Landis v. Hospice Care of Kansas*, 2010 U.S. Dist. LEXIS 129484, *6 (D. Kan. Dec. 7, 2010) (alleging business practices at Hospice Care of Kansas that included "setting aggressive census targets for each HCK branch office; staff incentives and monetary bonuses for meeting the aggressive census targets; threatening staff with terminations or reductions in hours if the census fell below targets; instructing staff to inaccurately document the condition of patients to make them appear appropriate for hospice and to avoid detection . . . ; implementing procedures that delayed the discharge or made it difficult to discharge ineligible patients; challenging or ignoring staff and physician recommendations to discharge patients; and disregarding or ignoring compliance concerns raised by an outside consultant" and resulted in "admission, retention, and submission of claims to Medicare for patients that were ineligible for the hospice benefit."
54. See Iglehart, *supra* note 42, at 2702 (citing to *Medicare Payment Advisory Commission, Rep. to the Congress on Medicare payment policy* [March 2009]); M. W. Wachterman et al., "Association of Hospice Agency Profit Status With Patient Diagnosis, Location of Care, and Length of Stay," *JAMA* 305, no. 5 (2011): 472-479 (citing H. A. Huskamp et al., "Providing Care at the End of Life: Do Medicare Rules Impede Good Care?" *Health Affairs* 20, no. 3 (2001): 204-211).
55. Kaiser Health News, "MedPAC Approves Recommendation to Revise Medicare Reimbursement System for Hospice Care Providers," January 12, 2009, available at <<http://www.kaiser-healthnews.org/daily-reports/2009/january/12/dr00056387>> (last visited February 25, 2011).
56. R. C. Lindrooth and B. A. Weisbrod, "Do Religious Nonprofit and For-Profit Organizations Respond Differently to Financial Incentives? The Hospice Industry," *Journal of Health Economics* 26, no. 2 (2007): 342-357, at 344.
57. H. A. Huskamp et al., "Variation in Patients' Hospice Costs," *Inquiry* 45, no. 2 (2008): 232-244, at 241 ("Our results suggest that average per day costs were markedly higher for stays of one or two days than for longer stays, and that total costs for longer stays increased at a decreasing rate as the length of stay increased.")
58. See Wachterman, *supra* note 54, at 477-78; K. A. Lorenz et al., "Cash and Compassion: Profit Status and the Delivery of Hospice Services," *Journal of Palliative Medicine* 5, no. 4 (2002): 507-514.
59. See Lindrooth and Weisbrod, *supra* note 56, at 345; see also Wachterman, *supra* note 54, at 472 (citing A. Gruneir et al., "Hospice Care in the Nursing Home: Changes in Visit Volume from Enrollment to Discharge among Longer-Stay Residents," *Journal of Pain Symptom Management* 32, no. 5 (2006): 478-487; K. Carney et al., "Hospice Costs and Medicare Reimbursement: An Application of Break-Even Analysis," *Nursing Economics* 7, no. 1 (1989): 41-48; N. Nicosia et al., "The Medicare Hospice Payment System: A Consideration of Potential Refinements," *Health Care Financing Review* 30, no. 4 (2009): 47-59; L. Cheung et al., *The Costs of Hospice Care: An Actuarial Evaluation of the Medicare Hospice Benefit* (New York: Milliman USA, 2003).
60. See MedPAC (2010), *supra* note 45, at 146.
61. *Id.* (summarizing the March 2009 Commission recommendations).
62. See Wachterman et al., *supra* note 54, at 478 (finding that hospice agencies, depending on profit status, do differentially

- enroll patients with dementia and other noncancer diagnoses, resulting in patterns of patient selection that leave “nonprofit hospice agencies disproportionately caring for the most costly patients – those with cancer and those tending to begin hospice very late in their course of illness; as a result, those hospices serving the neediest patients may face difficult financial obstacles to providing appropriate care in this fixed per-diem payment system.”)
63. See Lindrooth and Weisbrod, *supra* note 56, at 351-355. See MedPAC (2010), *supra* note 45, at 151 (“[P]roviders that exceeded the hospice cap, appeared to have a higher prevalence of long-stay patients across all diagnoses, suggesting some patient selection may be at work.”).
 64. See Lorenz, et al., *supra* note 58, at 511.
 65. Accord Wachterman, *supra* note 54, at 478 (“For-profit hospices had significantly more patients with stays exceeding 365 days and fewer patients with stays less than 7 days.”). See generally S. Ohri, *Essays in Health Economics* (2007) (unpublished Ph.D. dissertation, Univ. of CA, Irvine) (on file with authors).
 66. D. H. Taylor Jr. et al., “What Length of Hospice Use Maximizes Reduction in Medical Expenditures Near Death in the U.S. Medicare Program,” *Social Science & Medicine* 65, no. 7 (2007): 1466-1476, at 1470. See also K. L. Cerminara, “Hospice and Health Care Reform: Improving Care at the End of Life” (unpublished manuscript on file with authors at 32-33) (summarizing literature justifying longer patient stays).
 67. B. M. Kinzbrunner, “For Profit vs. Not-for-Profit Hospice: It Is the Quality That Counts,” *Journal of Palliative Medicine* 5, no. 4 (2002): 483-485, at 484.
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 69. 42 U.S.C. Sec. 1395x (dd) (1) (A) – (H); Code of Federal Regulations 418.64.
 70. Code of Federal Regulations 418.70 – 418.78.
 71. M. D. A. Carlson, W. T. Gallo, and E. H. Bradley, “Ownership Status and Patterns of Care in Hospice: Results from the National Home and Hospice Care Survey,” *Medical Care* 42, no. 5 (2004): 432-438.
 72. See Lorenz et al., *supra* note 58, at 511-512. See also S. M. O’Neill, S. L. Ettner, and K. A. Lorenz, “Paying the Price at the End of Life: A Consideration of Factors That Affect the Profitability of Hospice,” *Journal of Palliative Medicine* 11, no. 7 (2008): 1002-1008. This follow-up study published in 2008 found that for-profit hospice providers incur lower costs than non-profit providers and that some of these cost savings may be attributable to differences in staffing. However, differences in quality outcomes could not be identified, and the researchers called for future research examining “variation in [length-of-stay, nursing intensity, and provider skill mix] with patient clinical outcomes.” *Id.*, at 1007.
 73. See Kinzbrunner, *supra* note 67, at 484.
 74. E. J. Cherlin et al., “Interdisciplinary Staffing Patterns: Do For-Profit and Nonprofit Hospices Differ?” *Journal of Palliative Medicine* 13, no. 4 (2010): 389-394, at 393.
 75. See Cherlin et al., *supra* note 74, at 393. These findings are echoed by empirical data in “Economic Incentives in the Hospice Care Setting: A Comparison of For-Profit and Nonprofit Providers,” an unpublished manuscript by K. Noe and D. A. Forgione dated December 17, 2009 (on file with the authors).
 76. See Wachterman, *supra* note 54, at 478 (“... we are unable to assess the relationship between profit status and quality of care.”); Carlson, Gallo, and Bradley, *supra* note 71, at 435; D. E. Foliat, M. Clausen, and C. Siljestrom, “Bereavement Practices among California Hospices: Results of a Statewide Survey,” *Death Studies* 25, no. 5 (2001): 461-67.
 77. See Carlson, Gallo, & Bradley, *supra* note 71, at 437.
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 79. See Cerminara, *supra* note 66 (discussing provisions of The Patient Protection and Affordable Care Act that will require stricter monitoring processes designed to hold hospice providers more accountable, but which may also result in compliance burdens too great for small, rural hospice providers to satisfy).

Quality of care in for-profit and not-for-profit nursing homes: systematic review and meta-analysis

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ABSTRACT

Objective To compare quality of care in for-profit and not-for-profit nursing homes.

Design Systematic review and meta-analysis of observational studies and randomised controlled trials investigating quality of care in for-profit versus not-for-profit nursing homes.

Results A comprehensive search yielded 8827 citations, of which 956 were judged appropriate for full text review. Study characteristics and results of 82 articles that met inclusion criteria were summarised, and results for the four most frequently reported quality measures were pooled. Included studies reported results dating from 1965 to 2003. In 40 studies, all statistically significant comparisons ($P<0.05$) favoured not-for-profit facilities; in three studies, all statistically significant comparisons favoured for-profit facilities, and the remaining studies had less consistent findings. Meta-analyses suggested that not-for-profit facilities delivered higher quality care than did for-profit facilities for two of the four most frequently reported quality measures: more or higher quality staffing (ratio of effect 1.11, 95% confidence interval 1.07 to 1.14, $P<0.001$) and lower pressure ulcer prevalence (odds ratio 0.91, 95% confidence interval 0.83 to 0.98, $P=0.02$). Non-significant results favouring not-for-profit homes were found for the two other most frequently used measures: physical restraint use (odds ratio 0.93, 0.82 to 1.05, $P=0.25$) and fewer deficiencies in governmental regulatory assessments (ratio of effect 0.90, 0.78 to 1.04, $P=0.17$).

Conclusions This systematic review and meta-analysis of the evidence suggests that, on average, not-for-profit nursing homes deliver higher quality care than do for-profit nursing homes. Many factors may, however, influence this relation in the case of individual institutions.

INTRODUCTION

Nursing homes provide long term housing, support, and 24 hour nursing care for people who are unable

to function independently. Conservative forecasts from the European Union suggest that the need for nursing home care will double in the next 40 years as the population ages.¹ Many nursing home residents are bound to the routines, diets, and treatments prescribed by the home where they reside. In addition, many of them are unable to advocate for themselves because of physical, medical, cognitive, or financial limitations.

Concerns about quality of care in nursing homes are widespread among academic investigators,²⁻⁵ the lay press,⁶⁻¹¹ and policy makers.^{1,12} Whether a facility is owned by a for-profit or a not-for-profit organisation may affect structure, process, and outcome determinants of quality of care. In the United States, for example, two thirds of nursing homes are investor owned, for-profit institutions; in the United Kingdom, more than half of healthcare beds belong to independent nursing homes for older people, most of which are operated by for-profit institutions.¹³ The type of ownership of nursing homes in Europe varies; countries with previously dominant public healthcare systems (such as Poland) now seek privatisation.¹⁴ In Canada, 52% of nursing homes are in for-profit ownership, and not-for-profit care is evenly split between charitable or privately owned not-for-profit facilities and government or publicly owned not-for-profit facilities.¹⁵ Both for-profit and not-for-profit nursing homes may have both public and private funding.

Several investigators have assessed the relation between for-profit/not-for-profit status and quality of care.¹⁶ If quality or appropriateness of care varies significantly by ownership, this should influence government policies related to regulatory assessments and the use of public funds for nursing homes. The objective of this systematic review and meta-analysis was to examine the quality of care in for-profit and not-for-profit (privately and publicly owned) nursing homes to enhance the evidence base for public policy. This work is part of our series of systematic reviews

Evaluation of quality of studies used in meta-analyses: appropriate and inappropriate adjustments

Appropriate adjustments (0-5)

One point for each of:

- Having an adjusted analysis
- Adjusting for age
- Adjusting for severity of illness (comorbidities)
- Adjusting for presence or absence or severity of dementia
- Adjusting for payment status of residents (government funded v privately funded)

Inappropriate adjustments (yes/no)

Yes for adjusting for potential quality of care measures (that is, elements used to assess quality of care in a different study, such as pressure ulcer, restraint use, urinary catheterisation, staffing, or regulatory agency citations)

comparing health outcomes, quality and appropriateness of care, and payment for care in for-profit and not-for-profit care delivery institutions.¹⁷⁻¹⁹

METHODS

Search strategy

We used a multimodal search strategy focused on 18 bibliographical databases, personal files, consultation with experts, reviews of references of eligible articles, and searches of PubMed (for related articles) and SciSearch (for articles citing key publications).

A medical librarian (NB) used medical subject heading terms and keywords from a preliminary search to develop database search strategies. In each database, the librarian used an iterative process to refine the search strategy through testing several search terms and incorporating new search terms as new relevant citations were identified. The search included the following databases from inception to April 2006: Medline, Embase, HealthSTAR, CINAHL, Cochrane

Database of Systematic Reviews, Database of Abstracts of Reviews of Effects, Cochrane Central Database of Controlled Trials, NHS Economic Evaluation Database, AgeLine, Web of Science, Proquest Dissertations and Theses, ABI/INFORM Global, CB CA Reference, EconLit, Proquest European Business, PAIS International, and Worldwide Political Science Abstracts. Search terms included nursing home specific terms (such as nursing homes, homes for the aged, long-term care) combined with ownership terms (such as proprietary, investor, for-profit, and competition). The web appendix gives a complete description of our database search strategies.

Study selection

Eligibility criteria

Our inclusion criteria were as follows: patients—those residing in nursing homes in any jurisdiction; intervention—for-profit status of the institutions; comparator—not-for-profit status; and outcomes—measures of quality of care in for-profit and not-for-profit nursing homes.

Definition of quality of care

As described by the American Medical Association, quality of care is “care that consistently contributes to the improvement or maintenance of quality and/or duration of life.”²⁰ Quality of care was conceptualised by Donebedian as having inter-related structure, process, and outcome components.²¹ Structure pertains to resources used in care (such as staffing). Process refers to action on the patient (such as use of restraint and urethral catheterisation). Outcome indicators assess the patient’s end result (such as pressure ulcers). Many quality of care instruments have been proposed, although none has been universally accepted.²² Consequently, we used measures that authors defined as representing “quality of care” or “appropriateness of care,” provided that they defined a priori what constituted “good” or “poor” quality of care. The most frequently used quality measures were as follows.

Number of staff per resident or level of training of staff—The US Medicare/Medicaid nursing home regulations emphasise the importance of this measure of structure.²³ Studies have consistently shown a positive association between staffing and measures of both process and outcome quality.²⁴⁻²⁶

Physical restraints—Although use of physical restraints can prevent patients from injuring themselves, restraints diminish a patient’s self esteem and dignity. By restricting mobility, they lead to both physical deterioration and the formation of painful pressure ulcers.^{24,27} An Institute of Medicine report emphasised use of restraints as an important process measure.²³

Pressure ulcers—The importance of this outcome quality measure was also stressed by the Institute of Medicine. Pressure ulcers are preventable and are associated with pain and infection risk.²³

Regulatory (government survey) deficiencies—Deficiency citations by a regulatory body cover many aspects of

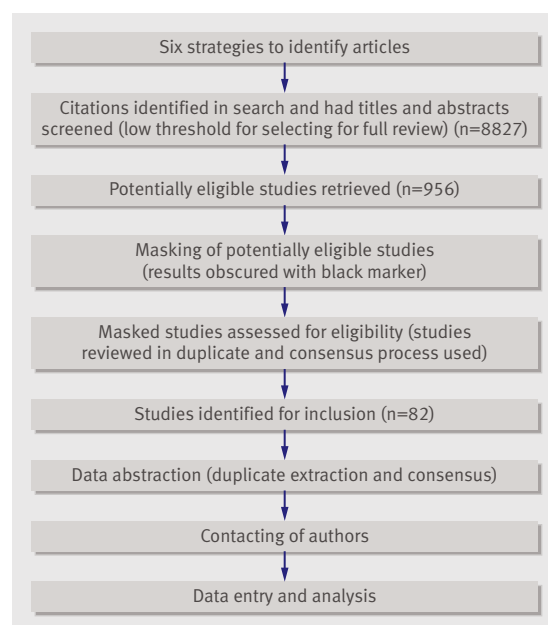


Fig 1 | Flow chart of steps in systematic review

Table 1 | Number of studies with quality of care comparisons favouring particular ownerships*: overall and staffing results

Quality of care measure	Summary of study characteristics	All statistically significant comparisons favoured NFP	Most statistically significant comparisons favoured NFP	Mixed results or direction unclear	Most statistically significant comparisons favoured FP	All statistically significant comparisons favoured FP
Quality overall with any quality of care measure (FP v NFP)	82 studies with data from 1965-2003 (1 from Australia, 5 from Canada, 1 from Taiwan, 74 from United States); 15 collected primary data, and 1 supplemented primary data with government survey data	40	2	37	0	3
Quality overall with any quality of care measure (FP v private NFP)	34 studies with data from 1965-2003 (1 from Australia, 1 from Canada, 38 from United States); 3 collected primary data, and 1 supplemented primary data with government survey data	16	2	16	0	0
More, or more extensively trained, staff	23 comparisons with data from 1965-2003 (2 from Canada, 21 from United States)	16	0	7	0	0

FP=for-profit; NFP=not-for-profit.

*Studies were classified into three categories: "all significant differences favour one ownership type" (at least one outcome with $P<0.05$ favoured either FP or NFP and all outcomes with $P<0.05$ favoured the same ownership—that is, all favoured NFP or all favoured FP); "most, but not all, significant differences favoured one ownership type" (at least four quality measures with $P<0.05$ and three times as many outcomes with $P<0.05$ favoured one ownership than favoured the other); "mixed results" (all other results).

nursing home care. Their strength lies in providing an overall measure of quality. Considerable work has gone into developing valid overall deficiency measures.⁴

Definition of nursing home

In keeping with other definitions,²⁸ we defined a nursing home as a home for elderly people in which most residents require daily nursing care. We included all long term care facilities that met this definition, including those studies that specifically evaluated "skilled nursing facilities" and special care facilities such as those for patients with Alzheimer's disease.

Assessment of study eligibility

Teams of two reviewers independently screened the titles and abstracts of all citations identified in our search, and if either reviewer thought that a citation might be eligible we retrieved the study for full text review. Research personnel who were not involved in

the screening or data abstraction process masked the study results from the text and tables of potentially eligible articles by using a black marker. Teams of two reviewers independently evaluated each masked article to determine eligibility. All disagreements were resolved by consensus, with discussions with the project lead (VRC) about eligibility criteria as required. In the event of ambiguity about whether the outcome was a measure of quality of care, we erred on the side of being inclusive.

Data extraction and study quality evaluation

Multiple teams of two reviewers independently abstracted data from included articles. We collected data on geographical area, year, data source, unit of measurement (number of residents or nursing homes), and quality of care measure. We developed and applied a 0-5 scale for evaluating appropriate adjustments and a yes/no scale for inappropriate adjustments (box). We explored whether appropriate and inappropriate

Table 2 | Number of studies with quality of care comparisons favouring particular ownerships: other results*

Quality of care measure	Summary of study characteristics	Favoured NFP ($P<0.05$)	Non-significantly favoured NFP	Direction unclear	Non-significantly favoured FP	Favoured FP ($P<0.05$)
Lower pressure ulcer prevalence	24 comparisons with data from 1984-2003 (1 from Canada, 23 from United States)	7	10	3	3	1
Lower physical restraint prevalence	21 comparisons with data from 1987-2003 (all from United States)	10	4	0	3	4
Fewer deficiencies on government surveys	19 comparisons with data from 1976-2003 (all from United States)	10	5	2	2	0
Lower urethral catheterisation prevalence	10 comparisons with data from 1984-2003 (all from United States)	4	2	3	0	1
Lower mortality	4 comparisons with data from 1984-99 (1 from Canada, 3 from United States)	1	2	1	0	0
Lower psychoactive drug use prevalence	4 comparisons with data from 1997-2003 (all from United States)	3	1	0	0	0
More feeding tubes	3 comparisons with data from 1990-9 (all from United States)	3	0	0	0	0
Lower hospital admission rate	3 comparisons with data from 1994-9 (1 from Canada, 2 from United States)	1	1	0	1	0

FP=for-profit; NFP=not-for-profit.

*Single overall comparisons were made for each of pressure ulcer, physical restraint, and deficiency outcomes, rather than multiple comparisons being made within the same study.

Table 3 | Characteristics of studies comparing private for-profit and private not-for-profit nursing home quality of care

Study	Place; year; data source*; No of residents or nursing homes	Factors controlled or adjusted for	
		Appropriate: age, severity of illness, severity of dementia, and payment status adjustments	Inappropriate: quality measures used in other studies; measures of intensity of care
Levey et al 1973 ^{w1}	Massachusetts; 1965 and 1969; state public health department; 129 homes in each year	Payment status	None
Cohen and Dubay 1990 ^{w2}	United States; 1981; MMACS; 694 FP and 235 private NFP homes	Severity of illness (long term care index of function), dementia (% confused or disoriented), payment status (% of Medicare patients in facility)	None
Elwell 1984 ^{w3}	New York state; 1976; Residential Health Care Facilities Report (NY); 258 FP and 130 private NFP homes	Severity of illness (ADLs), dementia (proportion of residents with totally impaired alertness), payment status (proportion of days paid for by Medicaid)	None
Lee 1984 ^{w4}	Iowa; 1980-1; Iowa Department of Health; 254 FP and 103 private NFP homes	Unadjusted analysis	Unadjusted analysis
Wiesbrod and Schlesinger 1986 ^{w5}	Wisconsin; 1976; State Division of Health; 220 FP and 134 private NFP homes	Adjusted analysis but none of 4 selected appropriate factors included	None
Lemke and Moos 1989 ^{w6}	United States; year not listed; research nurses; 44 FP and 44 private NFP homes	Unadjusted analysis	Unadjusted analysis
Pearson et al 1992 ^{w7}	Australia; 1988-90; authors collected data; 120 FP and 80 private NFP homes	Severity of illness (% of high need residents)	Staffing (% of nurses who were RNs)
Graber 1993 ^{w8}	North Carolina; 1991; OSCAR; 167 FP and 14 private NFP homes	Unadjusted analysis	Unadjusted analysis
Aaronson et al 1994 ^{w9}	Pennsylvania; 1987; MMACS; 269 FP and 180 private NFP homes	Varied by analysis: staffing—severity of illness (long term care index of resident function), payment status; pressure sores—age (% aged ≥85), severity of illness (long term care index of resident function), payment status; restraint use—dementia (proportion of confused patients per 100 beds), payment status (Medicaid use rate)	Varied by analysis: staffing—none; pressure sores—restraint use; restraint use—RN to resident ratio
Moseley 1994 ^{w10}	Virginia; 1983-5; state medical assistance services using long-term care information system; 174 homes with 2362 FP and 787 private NFP residents	Age, severity of illness (ADLs), dementia (oriented/disoriented)	None
Sainfort et al 1995 ^{w11}	Wisconsin; 1982; research teams; 44 FP and 46 private NFP homes	Unadjusted analysis	Unadjusted analysis
Holmes 1996 ^{w12}	Michigan; 1989; MMACS; 275 FP and 60 private NFP homes	Severity of illness (ADLs), payment status (% Medicaid patient days), dementia (% of residents with cognitive deficiencies)	None
Johnson-Pawilson and Infeld 1996 ^{w13}	Maryland; 1991-2; OSCAR; 137 FP and 55 private NFP homes	Severity of illness (ADLs), payment status (% of residents covered by Medicare)	Staffing (RN and full time equivalent nurse positions/patient)
Spector and Fortinsky 1998 ^{w14}	Ohio; 1994; MDS; 843 homes	Age, dementia (cognitive performance)	None
Spector et al 1998 ^{w15}	United States; 1987; NMES; 1695 FP and 535 private NFP homes	Age, dementia, payment status (Medicaid coverage %)	None
Hughes et al 2000 ^{w16}	Continental United States; 1997; OSCAR; 10 666 FP and 3342 private NFP homes	Dementia, payment status	Staffing (in facility model), antidepressant drug use
Troyer 2001 ^{w17}	Florida; 1994-6; OSCAR; unclear	Payment status (private pay/Medicaid/Medicare funding)	None
Chou 2002 ^{w18}	United States; 1984-94; NLTCs; 1770 FP and 1044 private NFP residents	Age, severity of illness (ADLs, before admission), dementia (cognitive score on admission)	None
Harrington et al 2002 ^{w19}	United States; 1997-8; OSCAR; 9009 FP and 3789 private NFP homes	Severity of illness (ADLs), dementia (in secondary analysis only), payment status (% Medicaid residents)	None
Grabowski and Hirth 2003 ^{w20}	United States; 1995; OSCAR; 11 174 FP and 4688 private NFP homes	Severity of illness (ADLs), payment status	None
Berta et al 2004 ^{w21}	Ontario; 1996-2002; RCFS; not clear	Unadjusted analysis	Unadjusted analysis
Grabowski and Angelelli 2004 ^{w22}	United States; 1998-2000; OSCAR and MDS; 9478 FP and 3434 private NFP homes	Adjusted analysis but none of 4 selected appropriate factors included	None
Grabowski and Castle 2004 ^{w23}	United States; 1991-9; OSCAR; 18 432 homes, selecting those with 5 consecutive yearly assessments with upper and lower quartile scores for each quality measure	Unadjusted analysis	Unadjusted analysis
Grabowski 2004 ^{w24}	Continental United States; 1996; MEPS and OSCAR; 815 homes, with 1856 FP and 673 private NFP residents	Age, severity of illness (ADLs), dementia, payment status	None
Grabowski et al 2004 ^{w25}	United States; 1998-9; MDS and OSCAR; 15 128 homes (13 819 for daily pain information, 13 169 for pressure ulcer information, 13 859 for physical restraint information)	Adjusted analysis but none of 4 selected appropriate factors included	None
Konetzka et al 2004 ^{w26}	United States; 1996-2000; OSCAR; 11 968 FP and 5077 private NFP homes	Severity of illness (ADLs), dementia (% with), payment status (% private pay)	None
Konetzka et al 2004 ^{w27}	United States; 1996; MEPS; 529 FP and 192 private NFP residents	Severity of illness (ADL dependence), dementia (cognitive performance), payment status (payer source)	Staffing (RNs and LPNs/100 residents, nursing assistants/100 residents)

Study	Place; year; data source*; No of residents or nursing homes	Factors controlled or adjusted for	
		Appropriate: age, severity of illness, severity of dementia, and payment status adjustments	Inappropriate: quality measures used in other studies; measures of intensity of care
Lapane and Hughes 2004 ^{w28}	Ohio; 1997 and 2000; MDS; 390 FP and 109 private NFP in 1997; 391 FP and 114 private NFP homes in 2000	Age, dementia, payment status (% of residents with Medicaid/Medicare)	None
Lapane and Hughes 2004 ^{w29}	IL, MA, MS, NY, OH, and SD; 2000; MDS and OSCAR; 1560 FP and 494 private NFP homes	Age, dementia (cognitive functioning), payment status (% of residents being paid for by Medicare/Medicaid)	Staffing (RN and LPN full time equivalents, and nursing assistants per 100 beds)
Rantz et al 2004 ^{w30}	Missouri; 2000-1; MDS and research nurses; 60 FP and 26 private NFP homes	Unadjusted analysis	Unadjusted analysis
Zhang and Grabowski 2004 ^{w31}	United States; 1987—MMACS, 1993—OSCAR; 5092 facilities for matched analysis between the 2 years	Severity of illness (ADL score), payment status (proportion Medicare funded)	None
Akinci and Krolkowski 2005 ^{w32}	Northeastern Pennsylvania; 2000-2; OSCAR; 46 FP homes and 38 private NFP homes	Unadjusted analysis	Unadjusted analysis
Bardenheier et al 2005 ^{w33}	United States; 1995, 1997, and 1999; NNHS; 1409 homes in 1995, 1488 in 1997, and 1423 in 1999	Age, payment status (payment source)	None
Zinn et al 2005 ^{w34}	United States; 2002-3; MDS; 10 763 FP, 4802 private NFP, 994 public	Adjusted analysis but none of 4 selected appropriate factors included	None

ADLs=activities of daily living; LPN=licensed practical nurse; FP=for-profit; NFP=not-for-profit; RN=registered nurse.

*MDS (minimum data set): quarterly survey of residents in US Medicaid certified facilities (resident level quality assessed); MMACS (Medicare and Medicaid Automated Certification System)/OSCAR (Online Survey, Certification and Reporting): facility level survey completed every 9-15 months for US Medicare/Medicaid certification (OSCAR replaced MMACS in 1991); MEPS (Medical Expenditure Panel Survey): see NMES; NMES (National (US) Medical Expenditure Survey): survey of nationally representative sample of people in nursing and personal care homes and facilities for mentally challenged people (collects information on health expenditures); NLTCS (National (US) Long Term Care Survey): survey of nationally representative sample of elderly, disabled, Medicaid beneficiaries in community or institutional settings (tracks expenditures, family caregiving, and Medicaid service use); NNHS (National (US) Nursing Home Survey): survey of nationwide sample of nursing homes conducted by the National Center for Health Statistics (includes non-Medicare/Medicaid facilities; tracks service use and costs); OSCAR: see MMACS; RCFS (Residential Care Facilities Survey): Statistics Canada census of residential care facilities.

adjustment explained heterogeneity. Disagreements were resolved by consensus, with consultation of a third investigator when resolution could not be achieved.

Statistical analysis

Many studies had for-profit versus not-for-profit comparisons including multiple measures of quality of care. When summarising results, we classified studies into three categories. (1) “All statistically significant differences favoured one ownership type”—studies fulfilled two requirements: at least one outcome with $P < 0.05$ favoured either for-profit or not-for-profit and all outcomes with $P < 0.05$ favoured the same funding structure (that is, all favour not-for-profit or all favour for-profit). (2) “Most but not all significant differences favoured one ownership type”—studies fulfilled two requirements: at least four quality measures had $P < 0.05$ and three times as many outcomes with $P < 0.05$ favour one ownership as favour the other. (3) “Mixed results”—all other results.

We pooled outcomes by using random effects models separately for the most frequently used quality of care measures: number of staff or level of training of staff, pressure ulcers, physical restraints, and regulatory (government survey) deficiencies. We considered $P < 0.05$ to be statistically significant.

We used prevalence, rather than incidence, in reporting physical restraint use and pressure ulcers based on authors' reporting of study outcomes. We report the odds ratios and 95% confidence intervals for these outcomes. When necessary, we converted other effect measures to odds ratios by using available data. For example, if the study reported a relative risk (RR) and the event proportion in for-profit nursing homes (P_{fp}), the odds ratios was calculated as $(RR \times (1 - P_{fp})) / (1 - P_{fp} \times RR)$. Similarly, when the studies

presented a β coefficient (an adjusted result representing difference in event proportions in for-profit and not-for-profit nursing homes, $P_{fp} - P_{nfp}$), if the event proportion (P_c) in the study population and sample sizes (N_{fp} and N_{nfp}) of the nursing homes in for-profit and not-for-profit were provided, solving the following two equations for P_{nfp} and P_{fp} , we computed the odds ratio: $P_{fp} - P_{nfp} = \beta$ and $(P_{fp} \times N_{fp} + P_{nfp} \times N_{nfp}) / (N_{fp} + N_{nfp}) = P_c$. For the outcomes of deficiencies and staffing, we used the ratio of the effect from not-for-profit to for-profit nursing homes in pooling studies.

We avoided repetition of data on the same resident from different studies by preferentially using data from the larger dataset when necessary. One author (GHG) made these decisions by using blinded copies of articles while unaware of study outcomes. We requested supplemental data when available data was insufficient for analysis. We evaluated heterogeneity with both a χ^2 test and the I^2 statistic, interpreting a low I^2 as 25% or lower and a high I^2 as 75% or higher.²⁹ We examined funnel plots for evidence of publication bias. We applied a univariate meta-regression random effects model to each pooled outcome to evaluate potential sources of heterogeneity.

Hypotheses to explain heterogeneity

Our a priori hypotheses for sources of potential heterogeneity included analysis of privately owned and publicly owned nursing facilities in the same category, appropriate and inappropriate adjustments, the year of data collection, geography and political environment, and primary compared with secondary data collection. We did univariate meta-regression for each potential cause of heterogeneity. We present subgroup results if the likelihood of the differences between subgroups being due to chance was $P < 0.10$. Our a priori

Table 4 | Quality of care measures and outcomes of studies comparing private for-profit and private not-for-profit nursing homes (favoured directions represent those with higher quality care)

Study	Quality measure	Outcome
Levey et al 1973 ^{w1}	Dietary options; doctor's order book showing activity; nursing kardex showing activity; activities for patients' availability (religious, recreation); patients' records being complete; personal care availability; physical plant utilities; restorative services availability; staffing—No of nursing shifts not covered per week, licensed nursing hours, total nursing hours	Mixed results: not significant for all measures (direction not noted)
Cohen and Dubay 1990 ^{w2}	Staffing: RNs, LPNs per bed	Mixed results: non-significantly favoured private NFP
Elwell 1984 ^{w3}	Multi-bed rooms (proportion of patients in them); staffing—allied health hours/resident/day, nursing hours/resident/day, physician hours/resident/week, RN hours/resident/day	Most significant comparisons favoured private NFP: having fewer multi-bed rooms favoured FP (P<0.001); all other measures favoured private NFP (P<0.025)
Lee 1984 ^{w4}	Nursing and personal care delivery index (by inspection and resident interviews on 17 items); quarterly care review completion; residents' satisfaction by interview; room conditions ratings by inspection; staffing—staff/resident ratio	Mixed results: resident satisfaction by interview and room conditions by inspection favoured FP (P<0.05); favoured private NFP for quarterly care review completion and staffing; non-significantly favoured private NFP for nursing and personal care delivery (P=0.077)
Wiesbrod and Schlesinger 1986 ^{w5}	Deficiencies in Wisconsin licensing survey	Mixed results: non-significantly favoured private NFP for church owned homes; non-significantly favoured FP for non-church owned (P<0.1)
Lemke and Moos 1989 ^{w6}	Service availability; staff richness; staffing—No of full time equivalent staff members/resident; subjective comfort; subjective control; subjective rapport; subjective resident autonomy; subjective security	All significant (P<0.05) comparisons favoured private NFP: only significant difference was for subjective rapport, which favoured private NFP; private NFP also offered more comfortable physical environment and more health services
Pearson et al 1992 ^{w7}	Freedom of choice; healthcare treatment; home-like environment; privacy and dignity; social independence; variety of experience	All significant (P<0.05) comparisons favoured private NFP: non-significantly favoured private NFP for having healthcare treatment, privacy, and dignity; favoured private NFP for all others
Graber 1993 ^{w8}	Deficiencies in OSCAR; ombudsman office complaints	All significant (P<0.05) comparisons favoured private NFP: non-significantly favoured private NFP overall; non-significantly favoured private NFP for deficiencies, but significantly favoured private NFP for complaints (P<0.01)
Aaronson et al 1994 ^{w9}	Pressure ulcer prevalence; restraint use prevalence; staffing—RNs, LPNs, and aides per 100 beds	Mixed results: favoured FP for pressure ulcer (P<0.05); favoured private NFP for staffing (P<0.05); non-significantly favoured private NFP for restraint use
Moseley 1994 ^{w10}	Composite measure of inappropriate care (underprovision of routine medical care, skilled nursing care, and physical therapy or overprovision of psychotropic drugs, physical restraints, or urinary catheterisation); functional improvement over 9 months	All significant (P<0.05) comparisons favoured private NFP: favoured private NFP (P<0.001) for composite measure; non-significantly favoured private NFP for functional improvement
Sainfort et al 1995 ^{w11}	Outcome based quality such as grooming, mood, awareness of condition, physical condition, promotion of family ties, continuity of lifestyle; process based quality such as plan of care, medical records, planning and evaluation, admission/transfer, residents' influence, staff's attitudes to residents, staff communication, communication between residents, variety/adequacy of activities, match of residents to activities, volunteer programme, meal variety/presentation, nutrition/diet	Mixed results: non-significantly favoured private NFP for outcome measures; difference not stated for process measures
Holmes 1996 ^{w12}	Deficiencies in MMACS per facility	Favoured private NFP (P value not stated)
Johnson-Pawlson and Infeld 1996 ^{w13}	Deficiencies in Long-Term Care Survey	Non-significantly favoured private NFP
Spector and Fortinsky 1998 ^{w14}	Pressure ulcer prevalence	Non-significantly favoured private NFP
Spector et al 1998 ^{w15}	Functional disability at year end; hospital admission incidence; infection prevalence; mortality during 1987; pressure ulcer prevalence	All significant (P<0.05) comparisons favoured private NFP: non-significantly favoured FP for functional disability and hospital admission incidence; non-significantly favoured private NFP for pressure ulcer prevalence; favoured private NFP for infection prevalence (P<0.05); non-significantly favoured private NFP for mortality (P<0.1)
Hughes et al 2000 ^{w16}	Psychotropic drug use (use is poorer quality than no use); deficiencies in OSCAR per resident day; staffing—No of RN hours/day, total No of nursing hours per patient day	Favoured private NFP (for all measures) (P<0.001)
Troyer 2001 ^{w17}	Deficiencies in OSCAR per resident day	Favoured private NFP (P<0.05)
Chou 2002 ^{w18}	Mortality; prevalence of dehydration, pressure ulcers, and urinary tract infection	Mixed results: non-significantly favoured private NFP for all measures except pressure ulcer prevalence, which non-significantly favoured FP
Harrington et al 2002 ^{w19}	Deficiencies in OSCAR (quality care)*; staffing—(RN + LVN/LPN hours)/resident day and nursing assistant hours/resident day	Favoured private NFP for all three measures
Grabowski and Hirth 2003 ^{w20}	Prevalence of feeding tube, pressure ulcers, restraint use, and urinary catheterisation; staffing—proportion of total staff who are RNs, total nurse staff/resident/day	Most significant comparisons favoured private NFP: favoured private NFP (P<0.01) for all measures except urinary catheterisation prevalence, which favoured FP (P<0.01)
Berta et al 2004 ^{w21}	Staffing—RN + nursing assistant hours/resident/day, other direct care staff hours/resident/day	Favoured private NFP (P<0.05) in comparison of FP and (private NFP + public + FP) for all measures
Grabowski and Angelelli 2004 ^{w22}	Pain reported by residents; pressure ulcer prevalence; restraint use prevalence	Mixed results: favoured FP (P<0.05) for pain reported by residents and restraint use prevalence; favoured private NFP for pressure ulcer prevalence
Grabowski and Castle 2004 ^{w23}	Prevalence of feeding tube, pressure ulcers, restraint use, and urinary catheterisation	Mixed results: favoured private NFP (P<0.001) for consistently poor quality homes for each measure; favoured FP (P<0.001) for consistently good quality homes for each quality measure
Grabowski 2004 ^{w24}	Deficiencies in health/quality of care in OSCAR	Non-significantly favoured FP

Study	Quality measure	Outcome
Grabowski et al 2004 ^{w25}	Pressure ulcer prevalence	Favoured private NFP (P<0.05)
Konetzka et al 2004 ^{w26}	Deficiencies in OSCAR; staffing—nursing assistant hours/resident day, RN hours/resident day, RN + LPN hours/resident day	All significant (P<0.05) comparisons favoured private NFP
Konetzka et al 2004 ^{w27}	Transfer to hospital rate for patients with pneumonia	Favoured private NFP (P<0.01)
Lapane and Hughes 2004 ^{w28}	Depression treatment prevalence—assessed by antidepressant use and specifically by SSRI use	Non-significantly favoured FP for both measures
Lapane and Hughes 2004 ^{w29}	Depression treatment prevalence—assessed by antidepressant use and specifically by use of antidepressants other than tricyclic antidepressants	All significant (P<0.05) comparisons favoured private NFP: favoured private NFP (P<0.05) for antidepressant use, and non-significantly favoured private NFP for not using tricyclic antidepressants
Rantz et al 2004 ^{w30}	Performance on MDS quality indicators, confirmed by research nurses	Non-significantly favoured private NFP
Zhang and Grabowski 2004 ^{w31}	Prevalence of pressure ulcers, restraint use, and urinary catheterisation	All significant (P<0.05) comparisons favoured private NFP: favoured private NFP for all measures (P<0.001) except restraint use prevalence, which non-significantly favoured private NFP
Akinci and Krolkowski 2005 ^{w32}	Deficiencies in quality of care in Pennsylvania database; staffing—certified nursing assistant hours/day, LPN/LVN hours/day, RN hours/day, total staff hours/day	All significant (P<0.05) comparisons favoured private NFP: non-significantly favoured private NFP (P<0.05) for deficiencies, certified nursing assistant hours, and LPN/LVN hours; favoured private NFP for RN hours and total staff hours
Bardenheier et al 2005 ^{w33}	Vaccination for pneumococcus (% of homes)	Non-significantly favoured private NFP
Zinn et al 2005 ^{w34}	Prevalence of infection, pain, pressure ulcers, pressure ulcers adjusted for facility admission profile or loss of ADLs, and restraint use	Mixed results: favoured private NFP (P<0.1) for all measures except pain prevalence, which favoured FP (P<0.01)

ADLs=activities of daily living; FP=for profit; LPN=licensed practical nurse; LVN=licensed vocational nurse; MDS=minimum data set survey; NFP=not for profit; OSCAR=Online Survey Certification and Reporting; RN=registered nurse; SSRI=selective serotonin reuptake inhibitor.

*Related to resident assessment, quality of nursing services, dietary services, physician services, rehabilitative services, dental services, pharmacy services, and infection control.

hypotheses to explain heterogeneity are detailed below.

Analysing privately and publicly-owned not-for-profit facilities in the same category—We hypothesised that privately owned not-for-profit facilities may deliver superior care compared with publicly owned facilities, and thus comparisons between not-for-profit and for-profit facilities may yield different results if publicly owned facilities are included, as seen in previous studies.¹⁹ We decided, a priori, to present the result of a for-profit versus privately owned not-for-profit meta-analysis separately from a for-profit versus not-for-profit meta-analysis regardless of whether privately or publicly owned not-for-profit status explained heterogeneity of the pooled estimate.

Extent of appropriate and inappropriate adjustment—We have defined concepts of appropriate and inappropriate adjustment in the data extraction section above. We compared studies with above median scores against those with scores below the median for assessment of appropriateness. Similarly, we compared studies with inappropriate adjustment against those without inappropriate adjustment, excluding studies that did not have an adjusted analysis.

Year of data collection—Legislation on quality of care in nursing homes was introduced in the United States under the Federal Nursing Home Reform Act (part of Omnibus Budget Reconciliation, 1987). Most of the studies we reviewed were from the United States. As a result, we compared data collected before and during 1987 versus after 1987.

Geography—We compared data collected inside and outside the United States, as geography and political environment are potential sources of heterogeneity.

Primary versus secondary data collection—We compared data acquired by primary (direct) data collection with those acquired by secondary (administrative agency) data collection.

RESULTS

Of the 8827 articles screened, we selected 956 for blinded full text review. Figure 1 details the steps in this review. Our agreement on the eligibility of studies was very good ($\kappa=0.73$ on the basis of two questions: does the study evaluate nursing homes, and does the study compare quality of care in for-profit and not-for-profit facilities?). Disagreements stemmed from implied but not stated definitions in the articles regarding good and poor quality and implied but not stated quality of care measures. We requested supplementary data from 36 authors; 25 responded, of whom three did new analyses in response to our queries.

We found 82 studies, spanning 1965 to 2003, comparing for-profit and not-for-profit nursing homes.^{w1-w82} We found 40 studies in which all statistically significant analyses (P<0.05) favoured not-for-profit homes and three in which all statistically significant analyses favoured for-profit homes. Similarly, 34 studies compared for-profit and privately owned not-for-profit nursing homes. In 16 of these, all statistically significant comparisons favoured higher quality in privately owned not-for-profit homes; none had all statistically significant analyses favouring higher quality in for-profit homes.

Tables 1 and 2 present a summary of the characteristics and outcomes of all studies included in this review and summarise the results of comparisons for quality measures evaluated by three or more studies. Tables 3 and 4 present the detailed study characteristics and

Table 5 | Characteristics of studies comparing for-profit and not-for-profit nursing home quality of care (public and private NFP homes)

Study	Place; year; data source*; No of residents or nursing homes	Factors controlled or adjusted for	
		Appropriate: age, severity of illness, severity of dementia, and payment status adjustments	Inappropriate: quality measures used in other studies; measures of intensity of care
Winn 1974 ^{w35}	Washington state; 1971; mailed questionnaire to administrators; 24 FP, 24 NFP	Unadjusted analysis	Unadjusted analysis
Riportella-Muller and Slesinger 1982 ^{w36}	Wisconsin; July 1977-June 1978; Wisconsin Department of Health and Wisconsin Nursing Homes Ombudsman Program; 462 homes	Adjusted analysis but none of 4 selected appropriate factors included	None
Nyman 1984 ^{w37}	Wisconsin; 1978-9; 1979 Wisconsin Nursing Home Survey, Quality Assurance Project Pre-test, and Cost-Quality Study dataset; 88 cases of nursing home violations (No of nursing homes not indicated)	Payment source; severity of illness (need for intermediate, personal, or residential care by payment source)	None
Brunetti et al 1990 ^{w38}	North Carolina; 1987; surveys to nursing home administrators; 236 nursing homes (164 FP, 40 NFP)	Certification (Medicare only, Medicaid only, or Medicare and Medicaid)	None
Munroe 1990 ^{w39}	California; 3 December 1985 to 30 December 1986; Office of Statewide Health Planning and Development of California; 455 homes	Illness severity (ADLs/IADLs); payment status	Proportions of residents with catheters and decubiti; ratio of RN to LVN hours per resident day
Cherry 1991 ^{w40}	Missouri; 1984; Missouri State Board of Health; 134 homes	Payment status	RN, LPN, aide hours per resident
Kanda and Mezey 1991 ^{w41}	Pennsylvania; 1980, 1982, 1985, 1987; Long Term Care Facilities Survey conducted by State Health Data Center, Pennsylvania Department of Health; 407 homes for 1980, 395 for 1982, 395 for 1985, 461 for 1987	Age of residents (in RN staffing comparison, when each year was analysed separately)	None
Cherry 1993 ^{w42}	Missouri; 1984; Missouri Division of Aging Routine Inspections and Missouri State Board of Health; 210 nursing homes	Adjusted analysis but none of 4 selected appropriate factors included	Nurse ratio
Zinn et al 1993 ^{w43}	Pennsylvania; 1987; MMACS, Pennsylvania Long Term Care Facility Questionnaire; 438 homes	Payment status	RNs per resident
Zinn 1993 ^{w44}	46 continental US states; 1987; AHCA and MMACS; approximately 14 000 homes	% private pay; % confused; % Medicare; functional severity index	RN, LPN, aide staffing; rate of catheter use, restraint use, and tube feeding
Graber and Sloane 1995 ^{w45}	North Carolina; 1991; OSCAR, North Carolina Division of Medical Assistance, Office of State Health Planning; 195 homes	Illness severity (% intubated patients, facility disability level, % with incontinent residents)	RN ratio; LVN/nursing assistant ratio; % of residents on psychotropic drugs
Christensen and Beaver 1996 ^{w46}	Oregon; 1991-4; Oregon Board of Examiners of Nursing Home Administrators and State surveyors reports; 147 nursing homes (37 NFP or government and 110 FP)	Unadjusted analysis	Unadjusted analysis
Mukamel 1997 ^{w47}	New York (excluding New York City); 1986-90; New York State Department of Health; approximately 550 homes, 42.3% of residents in proprietary homes, 39.9% of residents in voluntary NFP homes, 17.8% in public homes	Unadjusted analysis	Unadjusted analysis
Anderson et al 1998 ^{w48}	Texas; 1990; Texas Medicare Nursing Facility Cost Reports and Client Assessment, Review, and Evaluation form; 494 nursing homes	% of private pay	RN, LPN, aide staffing
Bliesmer et al 1998 ^{w49}	Minnesota; 1988-91; Minnesota Department of Human Services Long-Term Care Division facility profiles and assessments of residents by RNs; 4103 residents in 1988, 4676 residents in 1989, and 4672 residents in 1990	Age	Compliance with regulations
Castle and Fogel 1998 ^{w50}	United States; 1995; OSCAR, ARF; 15 074 homes	Illness severity (ADLs, incontinent bladder/bowel); payment status	Psychotropic drug use; staffing (high/medium/low RNs, LPNs, nursing assistants per resident)
Anderson and Lawhome 1999 ^{w51}	Advance care directive prevalence; feeding tube prevalence; drug errors noted on survey; pressure ulcer prevalence; restraint use prevalence; staffing—direct care hours per resident per day; urinary catheterisation prevalence	All significant ($P<0.05$) comparisons favoured NFP: non-significantly favoured NFP for drug errors, non-significantly favoured FP for restraint use prevalence; favoured NFP for all other comparisons	None
Bravo et al 1999 ^{w52}	Eastern townships of Quebec (Canada); 1996; resident interviews; 301 residents from 88 nursing homes	Age; cognitive functioning (MMMS score); functional autonomy (SMAF score)	Staff to resident ratio
Castle 1999 ^{w53}	CA, CT, IA, MD, MA, OH OR, TN, TX, and VA: 1990 and 1993, Resident Assessment Instrument and OSCAR; 268 facilities (90% in each cohort FP)	Age; ADLs; severity of illness; severity of dementia; payment status	Staffing levels
Ballou 2000 ^{w54}	Wisconsin; 1987-95; Wisconsin Centre for Health Statistics and Wisconsin Bureau of Quality Assurance	Unadjusted analysis	Unadjusted analysis
Castle 2000 ^{w55}	United States; 1997; OSCAR; 17 024 homes	Dementia; ADLs	Staffing (RNs, LPNs, nurse aides, specialists per resident and nurse aide training); pressure ulcer incidence; urinary catheterisation; use of psychoactive drugs
Castle 2000 ^{w56}	United States; 1992 and 1997; OSCAR; 15 455 homes in 1992; 16 533 homes in 1997	ADLs; payment status	Staffing (RNs, LPNs, nurse aides, rehabilitation assistants per 100 beds); antipsychotic drug use; residents with psychiatric problems
Castle 2001 ^{w57}	United States; 1999; OSCAR; 420 nursing facilities and OSCAR 1999 (~16 000 homes)	ADLs; dementia; payment status	Catheterisation; psychoactive drug use; physical restraint use; pressure ulcers; psychological disorders
Castle 2001 ^{w58}	United States; 1997; OSCAR; 16 871 homes	Age; ADLs	None

Study	Place; year; data source*; No of residents or nursing homes	Factors controlled or adjusted for	
		Appropriate: age, severity of illness, severity of dementia, and payment status adjustments	Inappropriate: quality measures used in other studies; measures of intensity of care
Castle 2001 ^{w59}	United States; 1992-7 and 1999; OSCAR (1992-7); 13 162 nursing homes	ADLs; private pay occupancy	Nurse staffing
Dubois et al 2001 ^{w60}	Eastern townships of Quebec (Canada); 1996; resident interviews; 88 nursing homes	Age	Staff to resident ratio; percentages of professionals among staff
Keith 2001 ^{w61}	A "Midwestern state"; 2 year period (year not specified); primary mail questionnaire and Area Agencies on Aging; questionnaire data from 633 volunteers and 1886 records	Adjusted analysis but none of 4 selected appropriate factors included	None
O'Neill et al 2001 ^{w62}	United States; 1999; OSCAR; 1098 homes	ADLs; dementia	Staffing (administration, medical director, RNs and LPNs, nurse aides per 10 residents)
Castle 2002 ^{w63}	United States; 1996-9; OSCAR; 14 042 homes	ADLs; payment status	Psychiatric problems
Lee et al 2002 ^{w64}	Taiwan; 1999; Quality Assessment Index; 28 homes (12 chain/FP, 12 independent/FP, and 4 NFP)	Adjusted analysis but none of 4 selected appropriate factors included	Ratio of nurses to average number of daily residents
Allen et al 2003 ^{w65}	Connecticut; 1998-2000; Connecticut Ombudsman Reporting System; 3443 complaints combined with related data from state's 261 nursing homes	Medicaid percentage	Nurse/resident ratio
Allen et al 2003 ^{w66}	Connecticut; 1998-2000; Long-Term Care Ombudsman Program complaint data; 3360 complaints from 261 nursing homes	Medicaid occupancy	Staffing (full time employee ratio of RNs, LPNs, and certified nursing assistants to total number of beds/facility)
Anderson et al 2003 ^{w67}	Texas; date of survey administration not provided (secondary data from 1995); survey data from nursing home staff and 1995 Texas MDS; 164 nursing homes	Adjusted analysis but none of 4 selected appropriate factors included	None
Castle and Banaszak-Holl 2003 ^{w68}	United States; 1999; OSCAR; 15 834 homes	Dementia; severity of illness (ADLs)	None
Harrington and Swan 2003 ^{w69}	California; 1999; state cost reports; 1155 homes	Payment status	None
Weech-Maldonado et al 2003 ^{w70}	NY, KS, VT, ME, and SD; 1996; Health Care Financing Administration Investment Analyst Nursing Home Database (MDS+, OSCAR)	Adjusted analysis but none of 4 selected appropriate factors included	None
Baumgarten et al 2004 ^{w71}	Maryland; 1992-5; interviews with significant others or MDS+; 59 homes (1938 residents)	Unadjusted analysis	Unadjusted analysis
Lau et al 2004 ^{w72}	United States; 1996; MEPS NHC, 3372 residents	Age; Medicaid coverage; mental status; ADL limitations	RN to non-RN ratio; RN to resident ratio; influenza vaccination percentage
Castle and Engberg 2005 ^{w73}	MO, TX, CT, and NJ; 2003; primary data on staff turnover from mailed survey, OSCAR for remaining information; 526 homes	Illness severity (ADLs, incontinent bladder/bowel); dementia	Staffing (full time equivalent RNs, LPNs, nursing assistants/100 beds)
Chesteen et al 2005 ^{w74}	Utah; 1999; survey of certified nursing assistants, Utah Medicare/Medicaid certification program, and operational data reported to the state of Utah; 890 certified nursing assistants at 42 nursing homes	% Medicaid	None
Gruber-Baldini et al 2005 ^{w75}	4 US states; year of data acquisition unclear; survey of resident care supervisors; 347 residents with dementia in 10 homes and 35 residential care/assisted living facilities	Cognitive status	% of supervisory staff trained; % of direct care providers trained
Intrator et al 2005 ^{w76}	United States (minus Alaska, District of Columbia, Hawaii, and Puerto Rico); 1993 to 2002; OSCAR and recent survey done by authors; 137 190 surveys from 17 635 distinct nursing facilities	Residents not paid for by Medicare or Medicaid (%), Medicare residents (%)	Total nurse hours per patient day ^{4.55}
McGregor et al 2005 ^{w77}	British Columbia; 2001; British Columbia Labour Relations Board; 167 homes	Severity of illness (levels of care)	None
Starkey et al 2005 ^{w78}	NY, ME, VT, and SD; 1996; MDS+, OSCAR; 1121 homes	Payment status	None
Stevenson 2005 ^{w79}	Massachusetts; 1998-2002; nursing home complaints received by Massachusetts DPH, OSCAR, and MDS QI; 539 nursing homes	ADLs	Survey deficiencies; staffing (nurse, aide); indwelling catheter; pressure sores
White 2005 ^{w80}	United States; 1997, 2001; OSCAR; ~10 000 homes in each year (unclear from article)	Payment status	None
Williams et al 2005 ^{w81}	4 US states; year of data acquisition unclear; primary survey of resident care supervisors; 331 residents with dementia in 10 homes and 35 residential care/assisted living facilities	Cognitive status	Staffing
McGregor et al 2006 ^{w82}	British Columbia; 1 April-1 August 1999; British Columbia Linked Health Database; 43 065 residents	None for crude analysis	None for crude analysis

ADLs=activities of daily living; DON=director of nursing; FP=for profit; IADLs=instrumental activities of daily living; LPN=licensed practical nurse; LVN= licensed vocational nurse; MMMS=modified mini-mental state examination; NFP=not for profit; RN=registered nurse; SMAF=functional autonomy measurement system.

*AHCA=American Health Care Association; ARF=Area Resource File; DPH=Department of Public Health; HCFA=Health Care Financing Administration; SAGE=Systematic Assessment of Geriatric Drug Use via Epidemiology; see table 3 for others.

Table 6 | Quality of care measures and outcomes of studies comparing for-profit and not-for-profit nursing homes (public and private NFP homes): favoured directions represent those with higher quality care

Study	Quality measure	Outcome
Winn, 1974 ^{w35}	Staffing—No of equivalent hours per patient day (1 RN hour=1 h; other employees' hours in proportion to 1 as their salary is to that of an RN), aide/orderly hours per patient day, LPN hours per patient day RN hours per patient day, total nursing care hours per patient day	Non-significantly favoured NFP for all comparisons
Riportella-Muller and Slesinger 1982 ^{w36}	Complaints to Wisconsin Nursing Homes Ombudsman Program; deficiencies in Wisconsin Office of Quality Compliance survey	All significant (P<0.05) comparisons favoured NFP: favoured NFP (P<0.001) for complaints; not significant (direction unclear) for deficiencies
Nyman 1984 ^{w37}	No of Medicaid violations weighted by severity in 1979, and composite variable for Wisconsin's Quality Assurance Project; each quality measure examined with 2 models	All significant (P<0.05) comparisons favoured FP: for violations, one model significantly favoured FP (P<0.05) and the other non-significantly favoured FP; for the composite variable, non-significantly favoured FP and NFP in two different models
Brunetti et al 1990 ^{w38}	Cardiopulmonary resuscitation policy prevalence and quality of policy compared with 10 model criteria	Mixed results: presence of policy, non-significantly favoured FP; quality of policy, difference not noted
Munroe 1990 ^{w39}	Deficiencies at California state licensing "276 health deficiencies," assessed for licensing (state) and certification (Medicare and Medicaid); staffing (turnover)	All significant (P<0.05) comparisons favoured NFP: non-significantly favoured FP for deficiencies; favoured NFP for staffing (P<0.001)
Cherry 1991 ^{w40}	Aggregate measure of staffing hours, pressure ulcer prevalence, urethral catheterisation, urinary tract infections/resident, and antibiotic use (poorly explained)	Non-significantly favoured NFP (only one aggregate outcome reported)
Kanda and Mezey 1991 ^{w41}	Staffing: RN staffing—No of full time RNs/100 beds, No of part time RNs/100 beds, total No of nursing staff/100 beds, proportion of part time and full time RNs to total nursing staff	All significant (P<0.05) comparisons favoured NFP: favoured NFP for part time RNs/100 beds (P<0.001), total nursing staff/100 beds (P<0.001); non-significantly favoured NFP for full time RNs/100 beds, proportion of full time and part time RNs to total nursing staff
Cherry 1993 ^{w42}	Poor nursing care (composed of four items) and non-compliance (defined as infraction in any of eight federally established categories of inspection)	All significant (P<0.05) comparisons favoured NFP; FP showed non-significantly more poor care and significantly greater non-compliance (P<0.01)
Zinn et al 1993 ^{w43}	Mortality—deaths per 100 residents; prevalence of pressure ulcers, restraint use, and urethral catheterisation	Non-significantly favoured NFP for all measures
Zinn 1993 ^{w44}	Staffing (RNs per resident, LPNs per resident, NAs per resident); catheter use rate; restraint use rate; tube fed rate; % not toileted	Mixed results: FP significantly associated with fewer RNs per resident, more LPNs per resident, higher catheter use rate, higher restraint use rate, and higher % not toileted; FP non-significantly associated with more NAs per resident and higher tube fed rate
Graber and Sloane 1995 ^{w45}	Restraint use prevalence at 1991 North Carolina Annual Survey	Non-significantly favoured NFP
Christensen and Beaver 1996 ^{w46}	Surveys of health and safety deficiencies and life safety code deficiencies	Significantly favoured NFP (P<0.005), meaning FP had more deficiencies
Mukamel 1997 ^{w47}	Deterioration of decubitus ulcers; physical restraint use prevalence; dehydration rates; deterioration in ADLs	Mixed results: FP associated with worse outcomes for deterioration in decubitus ulcers (P=0.004) and physical restraints (P=0.0001) and better outcomes for dehydration rates (P=0.0001); no significant difference for accident rates and No of deficiencies
Anderson et al 1998 ^{w48}	Average resident outcomes concerning verbal/physical aggression; other disruptive behaviour; geriatric-chair, wrist-mitten or vest-belt restraints; contracture; pressure ulcer; dehydration; urinary tract infection; fracture within preceding 3 months; and percentage improvements in resident outcomes between two time points	Not significant (direction not noted)
Bliesmer et al 1998 ^{w49}	Change in total dependence score (TDS) based on sum of eight ADLs: dressing, grooming, bathing, eating, bed mobility, transferring, walking and toileting	Mixed results: when deaths and discharges were excluded from the TDS scores, ownership status was no longer significant; FP status was significantly associated with higher chances of discharge in 2 of the 3 years examined (1990 (P<0.001) and 1991 (P<0.01)); NFP status was significantly associated with higher chances of death in 2 of the 3 years examined (1990 and 1991, P<0.001 for both)
Castle and Fogel 1998 ^{w50}	Restraint use prevalence	Significantly favoured FP (P<0.001)
Anderson and Lawhorne 1999 ^{w51}	Advance care directive prevalence; feeding tube prevalence; drug errors noted on survey; pressure ulcer prevalence; restraint use prevalence; staffing—direct care hours per resident per day; urinary catheterisation prevalence	All significant (P<0.05) comparisons favoured NFP: non-significantly favoured NFP for drug errors, non-significantly favoured FP for restraint use prevalence; favoured NFP for all other comparisons
Bravo et al 1999 ^{w52}	QUALCARE scale*	Not significant (direction not noted)
Castle 1999 ^{w53}	Psychoactive drug use prevalence	Non-significantly favoured FP
Ballou 2000 ^{w54}	Deficiencies (federal violations—definition unclear); staffing—RNs + LPNs per bed, total nursing staff per bed	Favoured NFP (unclear if significant)
Castle 2000 ^{w55}	Restraint use (changes with legislation)	Mixed results: favoured NFP (P<0.001) for not increasing restraint use with legislation; favoured FP (P<0.05) for decreasing restraint use with legislation
Castle 2000 ^{w56}	Restraint use citations	Favoured NFP (P<0.05)
Castle 2001 ^{w57}	Deficiencies in OSCAR† for 19 quality of care items; prevalence of pressure ulcers, psychoactive drug use, restraint use, and urethral catheterisation	All significant (P<0.05) comparisons favoured NFP; favoured NFP for deficiencies, psychoactive drug use, restraint use prevalence; not significant (direction unclear) for deficiencies, urethral catheterisation
Castle 2001 ^{w58}	Deficiency citations in OSCAR, subdivided into provision of appropriate services, training provisions and resident assessments	Favoured NFP (P<0.001)
Castle 2001 ^{w59}	Early adoptors of innovation (as measured through 13 special care units or subacute services)	Non-significantly favoured FP

Study	Quality measure	Outcome
Dubois et al 2001 ^{w60}	QUALCARE scale*	Not significant (direction not noted)
Keith 2001 ^{w61}	Ombudsman program complaints	Favoured NFP (P=0.001)
O'Neill et al 2001 ^{w62}	Deficiencies in OSCAR† (total deficiencies and severe deficiencies rated F and higher, where maximum No of deficiencies was 85 to reduce outlier effects); staffing—average total nursing hours per resident day	Favoured NFP (P<0.01) for all comparisons
Castle 2002 ^{w63}	Restraint use prevalence	Favoured FP: 1 citation (P<0.05); 2 consecutive yearly citations (P<0.01); 3 consecutive yearly citations (P<0.01)
Lee et al 2002 ^{w64}	QAI	Significantly favoured NFP for 3/5 categories and for total QAI score (P<0.05)
Allen et al 2003 ^{w65}	Ombudsman program complaints	Mixed results: non-significantly favoured NFP for both care complaints (P=0.79) and abuse complaints (P=0.20)
Allen et al 2003 ^{w66}	Ombudsman complaints	Significantly favoured NFP (P=0.021)
Anderson et al 2003 ^{w67}	Residents' behaviour (verbal or physical aggressiveness or other disruptive behaviour); restraint use; complication of immobility; or sustaining a fracture in previous 3 months	Mixed results: non-significantly favoured FP for resident behaviours and higher restraint use; non-significantly favoured NFP for complications of immobility and fractures
Castle and Banaszak-Holl 2003 ^{w68}	Prevalence of pressure ulcers, psychoactive drug use, restraint use, and urinary catheterisation	Favoured NFP for each comparison (chains and non-chain owned nursing homes analysed separately)
Harrington and Swan 2003 ^{w69}	Staffing—total nurse and RN hours per resident day	Favoured NFP (P<0.01)
Weech-Maldonado et al 2003 ^{w70}	Outcome quality (cognitive decline, mood decline, pressure ulcer prevalence); process quality (restraint use prevalence, urinary catheterisation prevalence); staffing (ratio of RN hours to total nursing hours)	Mixed results: non-significantly favoured FP for outcome quality; nearly significantly favoured NFP (P<0.10) for process quality; non-significantly favoured NFP for staffing
Baumgarten et al 2004 ^{w71}	Pressure ulcer incidence	Favoured NFP
Lau et al 2004 ^{w72}	Inappropriate medical prescriptions by Beer's criteria	Non-significantly favoured NFP
Castle and Engberg 2005 ^{w73}	Contracture prevalence; deficiencies in OSCAR†—focused on quality deficiencies (19/185 assessed); restraint use prevalence; pressure ulcer prevalence; psychoactive drug use prevalence (% of residents given anti-anxiety, sedative/hypnotic, and antipsychotic drugs); quality index—normalised measure of other indices (physical restraint prevalence, urethral catheterisation prevalence, contracture prevalence, pressure ulcer prevalence, psychoactive drugs use, and deficiency data)	All significant (P<0.05) comparisons favoured NFP: non-significantly favoured NFP for all comparisons except for restraint prevalence, which favoured NFP (P<0.01)
Chesteen et al 2005 ^{w74}	Health deficiency, severity of deficiency, and frequency of deficiency	Mixed results: non-significantly favoured NFP for all 3 measures, meaning that FP had worse deficiencies
Gruber-Baldini et al 2005 ^{w75}	Depression (of resident) prevalence, measured by modified Cornell scale for depression in dementia	Significantly favoured NFP (odds ratio 2.53 FP/NFP, 95% CI 1.29 to 4.98)
Intrator et al 2005 ^{w76}	Employment of nurse practitioners or physician assistants on staff	Non-significantly favoured FP
McGregor et al 2005 ^{w77}	Staffing: mean (dietary, housekeeping and laundry staff) hours per resident day; mean (RN, LPN and NA) hours per resident day; mean activity aide hours per resident day; mean dietary staff hours per resident day; mean housekeeping staff hours per resident day; mean laundry staff hours per resident day; mean LPN hours per resident day; mean NA hours per resident day; mean RN hours per resident day (each measure assessed in intermediate care, intermediate/extended care, and multilevel nursing home care settings)	All significant (P<0.05) comparisons favoured NFP—favoured NFP for all comparisons except: non-significantly favoured NFP for intermediate/extended care mean activity aide hours per resident day, multilevel care mean dietary staff hours per resident day, multilevel care mean laundry staff hours per resident day, intermediate care or intermediate/extended care mean LPN hours per resident day, mean NA hours per resident day in all three care settings, mean RN hours per resident day in intermediate and multilevel care settings; no direction to relation for multilevel care mean LPN hours per resident day; non-significantly favoured FP for mean laundry staff hours per resident day in all three care settings
Starkey et al 2005 ^{w78}	Cognitive decline between OSCAR assessments; mood decline between OSCAR assessments; prevalence of pressure ulcers, restraint use, and urinary catheterisation	All significant (P<0.05) comparisons favoured NFP: non-significantly favoured NFP for all measures except restraint use prevalence, which non-significantly favoured FP, and urethral catheterisation prevalence, which significantly favoured NFP
Stevenson 2005 ^{w79}	Ombudsman office complaints	Significantly favoured NFP (P<0.05)
White 2005 ^{w80}	Deficiencies in OSCAR†; pressure ulcer incidence (OSCAR); restraint use incidence (OSCAR)‡	All significant (P<0.05) comparisons favoured NFP: significantly favoured NFP (P<0.05) in all measures except pressure ulcer incidence, which non-significantly favoured FP
Williams et al 2005 ^{w81}	Resident self reported pain using Philadelphia Geriatric Centre pain intensity scale	Significantly favoured NFP (odds ratio 2.99 FP/NFP, 95% CI 1.40 to 6.39)
McGregor et al 2006 ^{w82}	Hospital admission rate for anaemia, dehydration, falls, pneumonia, urinary tract infection, and pressure ulcers/gangrene; mortality	All significant (P<0.05) comparisons favoured NFP: favoured NFP for all measures except falls, urinary tract infection, and pressure ulcer admissions (non-significantly favoured NFP) and mortality (no direction)

ADL=activities of daily living; FP=for-profit; NFP=not-for-profit; LPN=licensed practical nurse; OSCAR=Online Survey Certification and Reporting; QAI=quality assessment index (composite measure of staff presentation, operational efficiency, resident care quality, and institutional care plan); RN=registered nurse.

*54 items grouped into 7 subscales: older person's room, residence, physical care, medical maintenance, psychosocial care, human rights, and financial.

†OSCAR includes results of independent site surveys done every 9-15 months by auditors under contract from the Center for Medicare and Medicaid Services. The surveys detail compliance with each of 185 separate measures of quality that consider nursing home structure, processes, and outcomes. As a measure of quality, deficiency data has some limitations. Also, under-detection and under-reporting of deficiencies may occur. Deficiencies are categorised according to severity from A to L. F and higher denotes care that has potential to cause harm or immediate jeopardy to patients. In some years, deficiencies assessed varied from state to state.

‡Use of vests, belts, mittens, or wrist or ankle restraints. Chairs with locking trays (Geri-trays) are also included, whereas bed rails are not. Specifically, restraints imposed for discipline or convenience, and not needed to treat the resident's medical symptoms were objectionable. Variable for restraint use is dichotomous—the home either did or did not receive this deficiency. Restraint use was verified by surveyors during the day for OSCAR.

Table 7 | Results of testing of a priori hypotheses to explain heterogeneity

Outcome	Summary study characteristics	FP-NFP v FP-private NFP	Interaction P value		
			Above median v below median appropriate adjustment score	Presence v absence of inappropriate adjustment, among studies with adjusted analysis	Data collection before or during 1987 v after 1987
More extensively trained staff or more staff	13 studies had poolable data, from 1971-2002; 3 removed for data overlap; 10 meta-analysed—4 collected data after 1987, 1 used primary data, 1 had data from Canada (remainder from United States)	0.64 for FP-private NFP; ratio of effect sizes 1.09 (95% CI 1.07 to 1.12, $P<0.001$, $I^2=0\%$)	0.15	0.99	0.66
Lower pressure ulcer prevalence	16 studies had poolable data, from 1987-2003; 5 removed for data overlap; 11 meta-analysed—2 used primary data, 1 had data from Canada (remainder from United States)	0.76 for FP-private NFP comparison; ratio of effect sizes 0.89 (0.82 to 0.98, $P=0.02$, $I^2=39.3\%$)	0.42	0.54	All meta-analysed data collected after 1987
Lower physical restraint prevalence	13 studies had poolable data from 1987-2003; 5 removed for data overlap; 8 meta-analysed—1 used primary data	0.84 for FP-private NFP comparison; ratio of effect sizes 0.94 (0.78 to 1.14, $P=0.53$, $I^2=84.9\%$)	0.86	0.13	All meta-analysed data collected after 1987
Fewer deficiencies on government surveys	13 studies had poolable data from 1976-2003; 6 removed for data overlap; 7 meta-analysed—2 collected data before 1987	0.56 for FP-private NFP comparison; ratio of effect sizes 0.92 (0.79 to 1.06, $P=0.25$, $I^2=63.1\%$)	0.80	0.54	0.11; for data collected after 1987, pooled effect size 0.73 (95% CI 0.54 to 0.97, $P=0.03$, $I^2=67.9\%$) favouring NFP homes; for data collected before or during 1987, pooled effect size 1.09 (0.94 to 1.25, $P=0.25$, $I^2=0\%$)

FP=for-profit; NFP=not-for-profit.

outcomes of those studies that compared for-profit and privately owned not-for-profit facilities. Similarly, tables 5 and 6 present the detailed study characteristics and outcomes of studies that compared for-profit and not-for-profit (publicly and privately owned) facilities.

We meta-analysed data for the four most commonly used quality measures. Table 7 presents a summary of the characteristics of studies meta-analysed, along with the results of sensitivity analyses to explain heterogeneity among studies in each meta-analysis. Two meta-analyses showed statistically significant results favouring higher quality care in not-for-profit nursing homes.

We found more or higher quality staffing in not-for-profit homes (ratio of effect 1.11, 95% confidence

interval 1.07 to 1.14, $P<0.001$, $I^2=91.6\%$) (fig 2). We found a similar result favouring not-for-profit homes when assessing staffing hours alone, with a ratio of effect of 1.11 (1.08 to 1.14, $P<0.001$, $I^2=70.3\%$), an absolute hours increase of 0.42 (0.31 to 0.53) hours/resident/bed/day, and a relative hours increase of 11% (8% to 14%). When the only non-US study was excluded, we arrived at a similar ratio of effect for more or higher quality staffing in not-for-profit homes of 1.11 (1.07 to 1.15, $P<0.001$, $I^2=92.4\%$).

We found a lower prevalence of pressure ulcers in not-for-profit homes (odds ratio 0.91, 95% confidence interval 0.83 to 0.98, $P=0.02$, $I^2=52.1\%$), with an absolute risk reduction of 0.59% (0.13% to 1.12%) and a relative risk reduction of 8.4% (1.9% to 16%) (fig 3). When the only non-US study was excluded, we arrived at a similar odds ratio favouring lower pressure ulcer prevalence in not-for-profit homes of 0.89 (0.82 to 0.97, $P=0.007$, $I^2=50.2\%$).

The remaining two meta-analyses showed non-statistically significant differences. We found less use of physical restraints in not-for-profit homes (odds ratio 0.93, 0.82 to 1.05, $P=0.25$, $I^2=74.6\%$) (fig 4) and fewer deficiencies in governmental regulatory assessments in not-for-profit homes (ratio of effect 0.90, 0.78 to 1.04, $P=0.17$, $I^2=59.8\%$) (fig 5).

Funnel plots for the four meta-analyses did not suggest publication bias. A priori hypotheses did not explain the observed heterogeneity (table 7).

DISCUSSION

Our systematic review identified 82 studies comparing quality of care in for-profit and not-for-profit nursing homes. More studies had all statistically significant analyses showing higher quality in not-for-profit

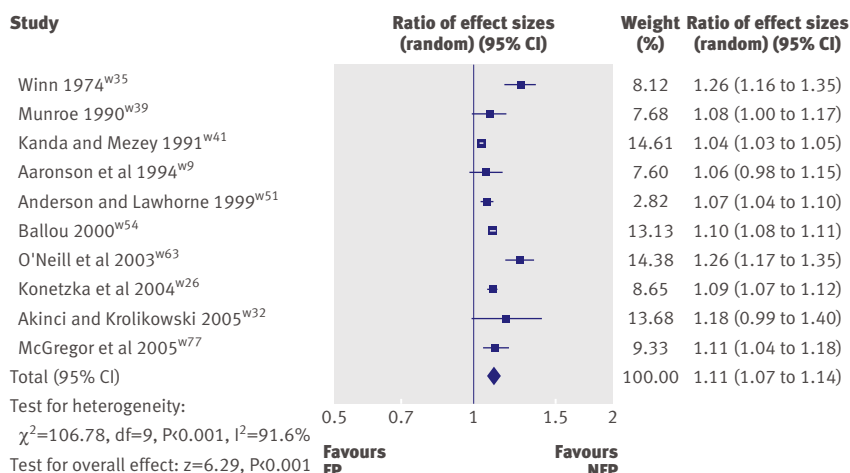


Fig 2 | Ratio of effect sizes for staffing quality in for-profit (FP) and not-for-profit (NFP) nursing homes. Ratios listed represent effect size in NFP homes compared with that in FP homes. Ratio >1 indicates that NFP homes had more, or higher quality, staffing (that is, favours NFP)

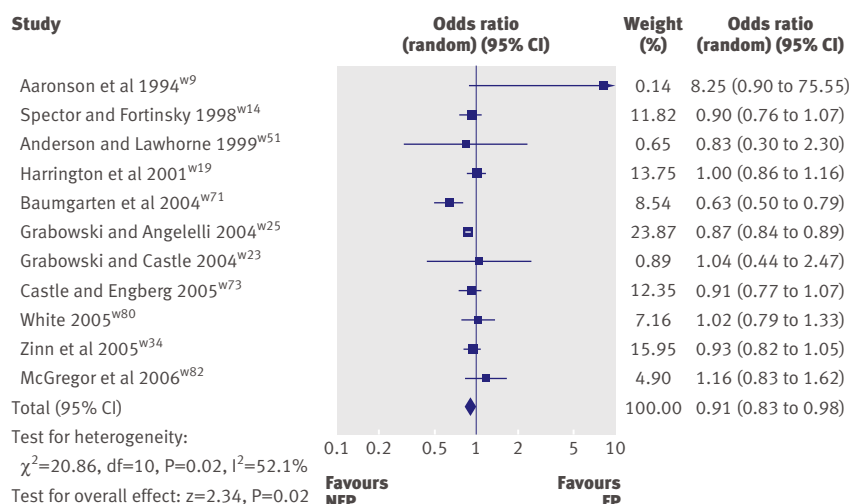


Fig 3 | Odds ratios (OR) comparing pressure ulcer prevalence in for-profit (FP) and not-for-profit (NFP) nursing homes. OR <1 indicates lower risk of pressure ulcers in NFP facilities than in FP facilities, suggesting that NFP facilities deliver higher quality care

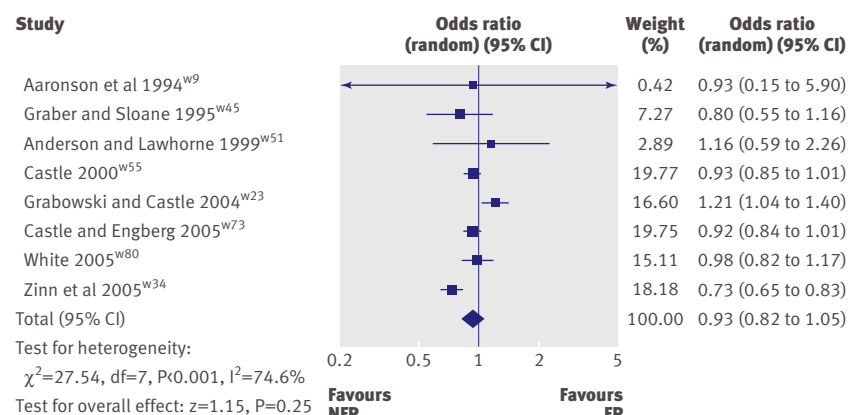


Fig 4 | Odds ratios (OR) comparing physical restraint prevalence in for-profit (FP) and not-for-profit (NFP) nursing homes. OR <1 represents less physical restraint use in NFP facilities than FP facilities, suggesting that NFP facilities deliver higher quality care

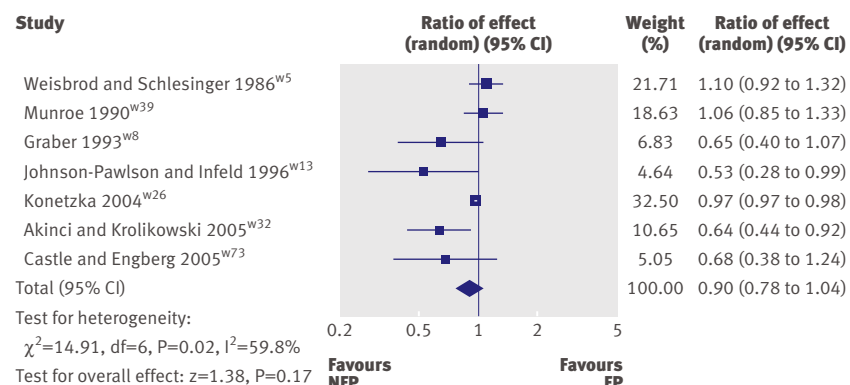


Fig 5 | Ratio of effect sizes for regulatory deficiencies in for-profit (FP) and not-for-profit (NFP) nursing homes. Ratios listed represent effect size in NFP facilities compared with that in FP facilities. Ratio <1 represents fewer deficiencies in NFP homes, suggesting that NFP homes deliver higher quality care

nursing homes than in for-profit nursing homes. Many studies, however, showed no significant differences in quality by ownership, and a small number showed statistically significant differences in favour of for-profit homes. This pattern held true when we compared for-profit homes with both privately owned and publicly owned not-for-profit facilities. Pooled analyses of the four most commonly used quality measures showed statistically significant results favouring higher quality care in not-for-profit homes for staffing and prevalence of pressure ulcers and non-statistically significant differences favouring not-for-profit homes in physical restraint use and regulatory agency deficiencies. The large observed heterogeneity was not explained by our *a priori* hypotheses.

Previous systematic reviews

Two previous systematic reviews have compared quality of care in for-profit and not-for-profit nursing homes. In 1991 Davis and colleagues found that many studies showed that higher quality of care was provided in not-for-profit nursing homes; however, weaknesses in the methodological design of the included studies limited the conclusions that could be drawn.³⁰ In 2002 Hillmer and colleagues did a systematic review comparing for-profit and not-for-profit facilities (including publicly owned facilities), focusing on studies in North America completed after the previous review.³¹ This study also concluded that not-for-profit facilities provided better quality care than for-profit facilities.

Strengths and weaknesses of this review

We did a comprehensive search, which identified 60 studies not included in previous reviews. We assessed studies spanning four decades and published in any language. We masked study results before determining eligibility and did duplicate citation screening, data abstraction, and quality assessment. We contacted authors for missing data and received responses from most of them. We compared quality of care in both for-profit versus not-for-profit nursing homes and for-profit versus privately owned not-for-profit nursing homes, did pooled analyses of quality of care measures, and found largely consistent results.

Our review has limitations resulting from the characteristics of the studies included. No randomised trials have compared quality of care across nursing home ownership, and no such trials are ever likely to be done. Furthermore, most studies are from the United States, which raises questions of generalisability to other jurisdictions.

Studies are also limited in that no standard definition of quality of care exists. The result is that studies used a very wide variety of alternative measures of quality. Even when the same measures were used, standardised approaches to the application of those measures were lacking. For example, meta-analysis for number and qualifications of staff fails to take into account staff turnover, the use of agency staff, and the professional mix of staff.²⁵

WHAT IS ALREADY KNOWN ON THIS TOPIC

The quality and appropriateness of care delivered in nursing homes is a major concern for the public, policy makers, and media

Controversy exists about whether for-profit compared with not-for-profit ownership affects quality of care

WHAT THIS STUDY ADDS

Most studies suggest a trend towards higher quality care in not-for-profit facilities than in for-profit homes, but a large proportion of studies show no significant trend

Moreover, several eligible studies used administrative databases, which further limits the comprehensiveness and quality of the data. For example, the American Online Survey Certification and Reporting (OSCAR) database comprises self reported data from nursing home administrators; surveyors verify only a sample. Careful duplicate abstraction of data from patients' charts with a priori definitions or, ideally, direct assessment of care provision would be preferable.

Our meta-analyses are limited in that many authors could not remove publicly owned facilities from their datasets for our for-profit versus privately owned not-for-profit analysis. However, in our sensitivity analyses, results comparing for-profit and not-for-profit facilities were not significantly different from those in which we restricted the not-for-profit facilities to those for which we could confirm ownership.

Heterogeneity

On the one hand, one might see our results as compellingly favouring not-for-profit facilities. The gradient between studies in which all significant measures favoured not-for-profit (40 studies) and those in which all measures favoured for-profit (3) is large (table 1). All four meta-analyses favoured not-for-profit institutions, and two reached statistical significance.

On the other hand, 37 studies had mixed results (some measures favoured for-profit, some not-for-profit) and considerable heterogeneity was present in the results of the meta-analyses. This suggests that although the average effect is clear, that effect probably varies substantially across situations. The variability is probably explained, in part, by a variety of factors that vary within categories of for-profit and not-for-profit homes, including management styles, motivations, and organisational behaviour. For example, for-profit facilities owned and operated by investor owned corporations may have different motivations than facilities owned by small private businesses or single proprietors. Not-for-profit facilities run by charities might differ in structure and process from those run by municipalities; not-for-profit facilities that are managed by for-profit nursing home companies may function differently from those that are not.

We have partially mitigated this problem with our a priori hypotheses (extent of appropriate adjustments, year of data collection, geography and political

environment, primary compared with secondary data collection, and, in particular, public versus private ownership of not-for-profit facilities). None of these variables, however, explained the substantial heterogeneity of our results. The studies failed to specify characteristics of individual nursing homes in sufficient detail to allow analyses exploring factors such as those listed above (ownership by corporation, small business, charitable organisation of municipality; management of not-for-profit homes by for-profit providers).

Significance of this study

Most of the studies in our systematic review showed lower quality of care in for-profit nursing homes than in not-for-profit nursing homes. However, a large proportion of studies showed no significant difference in quality of care by ownership. In the long term care market, in which funding is often provided by the government at fixed rates, both for-profit and not-for-profit facilities face an economic challenge that may affect staffing and other determinants of quality of care. In the for-profit context, however, shareholders expect 10-15% returns on their investments,³² taxes may account for 5-6% of expenses, and facilities tend to have higher executive salaries and bonuses, so for-profit facilities have a strong incentive to minimise expenditures.³³ Minimising expenditures may lead to lower quality staffing and higher rates of adverse events (such as pressure ulcers), which may be reflected in citations for deficiency.

Proving causality by using observational studies is difficult. Furthermore, given their variability, the results do not imply a blanket judgment of all institutions. Some for-profit institutions may provide excellent quality care, whereas some not-for-profit institutions may provide inferior quality of care.

Our findings are, however, consistent with findings of higher risk adjusted death rates in for-profit hospitals and dialysis facilities as shown in previous reviews,^{18,19} as well as providing insight into average effects. Given the absolute risk reduction in pressure ulcers of 0.59%, we can estimate that pressure ulcers in 600 of 7000 residents with pressure ulcers in Canada and 7000 of 80 000 residents with pressure ulcers in the United States are attributable to for-profit ownership. Similarly, given an absolute increase in nursing hours of 0.42 hours per resident per bed per day, we can estimate that residents in Canada would receive roughly 42 000 more hours of nursing care a day and those in the United States would receive 500 000 more hours of nursing care a day if not-for-profit institutions provided all nursing home care. These estimates are based on the 2006 census from Canada showing that 100 740 of 252 561 nursing home residents resided in for-profit nursing homes and the 2000 census from the United States showing a total of 1 720 500 nursing home residents.^{34,35} These estimates assume that two thirds of US nursing home residents live in for-profit facilities.

Further research and conclusions

Although this review has fully assessed the data available comparing for-profit and not-for-profit nursing home care, additional work is needed to compare the costs between these types of facilities and to evaluate the consistency of these findings outside of the United States and Canada. Although we have extensively evaluated the literature comparing quality of care in for-profit, charitable organisation owned, and government owned nursing homes, the available studies did not allow comparison of the possible impact of factors such as sub-category of for-profit ownership (for example, chain *v* non-chain, investor *v* small business ownership, municipality *v* federal government ownership). Nursing home management companies further complicate the relation between ownership and quality of care. These are all important areas that warrant further research.

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